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Reflections From the Field - Volume 1

Edited by Lee Waller and Sharon Kay Waller



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*Edited by Lee Waller
and Sharon Kay Waller*

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Education and Human Development

Volume 3

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Education and Human Development is an interdisciplinary research area that aims to shed light on topics related to both learning and development. This Series is intended for researchers, practitioners, and students who are interested in understanding more about these fields and their applications.

Meet the Series Editor



Katherine Stavropoulos received her BA in Psychology from Trinity College, in Connecticut, USA and her Ph.D. in Experimental Psychology from the University of California, San Diego. She completed her postdoctoral work at the Yale Child Study Center with Dr. James McPartland. Dr. Stavropoulos' doctoral dissertation explored neural correlates of reward anticipation to social versus nonsocial stimuli in children with and without autism spectrum disorders (ASD). She has been a faculty member at the University of California, Riverside in the School of Education since 2016. Her research focuses on translational studies to explore the reward system in ASD, as well as how anxiety contributes to social challenges in ASD. She also investigates how behavioral interventions affect neural activity, behavior, and school performance in children with ASD. She is also involved in the diagnosis of children with ASD and is a licensed clinical psychologist in California. She is the Assistant Director of the SEARCH Center at UCR and is a faculty member in the Graduate Program in Neuroscience.

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Preface

In the academic year 2020–2021, COVID-19 ravaged the world, causing more than six million deaths globally. This highly infectious pandemic devastated higher education and forced almost all institutions to reinvent instructional strategies and delivery methodologies. The pandemic so widely affected higher education institutions that many have come to believe that higher education has been forever transformed in ways that are yet to be fully realized. Without a doubt, digital education became the preferred delivery methodology as students and faculty sought the protections afforded by isolation. Some institutions were prepared to utilize this delivery methodology. Many were not prepared. Regardless, the pandemic forced the issue. Higher education was changed to protect both students and faculty.

The changes brought to the field of higher education have been more substantial than any other changes within the last hundred years. Not since the Spanish flu in the early 1900s has the world faced a similar epidemic. While all students have been affected, first-generation, female, and underrepresented students have borne the bulk of the burden. To better understand the ravages of the pandemic, this book examines four distinct aspects in four sections: “The Perspectives of Higher Education”, “COVID as a Catalyst for Change”, “Embracing Online Learning as a Response to COVID”, and “Post COVID: The Way Forward”. These categories of inquiry are intended to shed light on the impact of the pandemic and the future of higher education post-COVID.

To understand the impact of the COVID pandemic more fully, one must examine higher education both pre and post-pandemic. A good perspective of higher education is fundamental to grasping the many changes brought by the COVID-19 epidemic. An understanding of the past and present more clearly illuminates the future of higher education post-COVID. The university experience for women, students of color, and the disfranchised has been particularly impacted. While many students were forced to drop out in order to financially survive during the pandemic, the real question remains as to the likelihood of their return to pursue their educational dreams. How resilient will these students prove to be? How resilient will higher education prove in recovering those whose dreams were placed on hold?

COVID wrought many changes upon the higher education system. The brick-and-mortar institutions were hit the hardest. Those institutions already deeply involved in the delivery of online learning were often the least impacted. The institution’s commitment to online learning proved to be highly correlated to the ability to successfully navigate the changes brought on by the pandemic. Those institutions only lightly engaged in distance education or not engaged in distance education found themselves thrown into a new learning paradigm. Both instruction and assessment proved difficult and involved a substantial learning curve forced upon all institutions whether prepared or not for digital education. Student psychological well-being suffered as students found themselves isolated and separated from their colleagues and faculty. Many barriers and challenges emerged requiring the best practices of higher education institutions. Where deficiencies in social justice and equal treatment already existed, these became much more pronounced as support interventions

were employed. Institutions struggling to address student needs were more likely to serve those deemed most important. Many other students simply fell to the wayside as they navigated financial and technological challenges.

Online and digital learning emerged as the answer to the isolation imposed by the pandemic. As previously mentioned, some institutions were prepared, and others were not. The transition to online learning involved so much more than just carrying face-to-face instruction into a digital environment. Many institutions discovered this truth the hard way as they floundered through the transition process. The virtual environment demanded the reinvention of curriculum and instructional methodologies. Students lacking the required digital resources were often forced to drop out. Many faculties also struggled to master the instructional competencies required in the new learning environment. The engagement of students with other students and of students with faculty replaced the standard classroom environment and proved an important strategy for enhancing learning. The real question remains as to the possibility of returning to the educational environment as it once was. What lessons have been learned? How has education forever changed?

The future of higher education is now in question. What will higher education look like in the post-COVID world? What have teachers learned about teaching during the pandemic? What are the new dynamics of professional development as faculty are prepared for the future? Faculty who lived through the pandemic have gained rich insight into addressing the global disruption of the educational process. While the future of higher education may be in question, the gifts and talents of higher education faculty remain absolute. The creative and innovative will always rise to meet and overcome the barriers and challenges. This creativity and innovativeness must be unleashed in the days ahead to ensure that the generation forced out by the pandemic is regained and allowed to complete their educational dreams. The world can ill afford the loss of this massive number of future employees.

The challenge of restoring the educational system to its previous level of accomplishment rests upon all institutions. Educators must ensure that COVID did not happen to them. Rather they must ensure that COVID happened for them. The creative, the innovative, those with a vision for the future must see beyond the difficulties to use the lessons learned to improve the educational system and to raise higher education to a new level of accomplishment. After all, the world depends on this coming generation of learners.

Special thanks go out to the many, many educators who embraced the challenges brought on by COVID and used them to improve the learning environment.

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Section 1

The Perspectives of Higher
Education

Chapter 1

Perspective Chapter: Gender, Social Class and ‘A Sense of Belonging’ at University – A Historical Perspective

Sam Shields

Abstract

A sense of belonging is a critical aspect of the university experience for undergraduates. However, with greater heterogeneity in the backgrounds of students in mass higher education systems, it is recognised that those with marginalised identities are less likely to develop a sense of academic and social belonging. This chapter offers a historical perspective of how gender and social class have impacted a sense of belonging for students over a one hundred year period. First, this chapter reflects on how participation in higher education in the UK has increased, with 4357 students graduating from an undergraduate degree in 1920 compared to 359,115 graduating in the academic year 2020–21. Second, how the number of women studying in higher education has changed since 1920 is considered, alongside patterns of degree subject choices for women. Third, the social class composition of university students and the extent to which ‘working-class’ students have ‘fitted in’ to the university environment are explored. Fourth, funding and financial challenges experienced historically and currently by less advantaged students are discussed. Finally, this chapter concludes by suggesting that women’s experiences of university have improved significantly, but social class continues to impact on a sense of belonging for many undergraduates.

Keywords: belonging, women, university experience, social class, gender equality

1. Introduction

In the United Kingdom (UK) participation in higher education has increased dramatically in one hundred years. In 1920, 4357 students graduated from an undergraduate degree [1] compared to 359,115 graduating in the academic year 2020–21 [2]. However, further analysis of these figures shows distinct patterns of participation in relation to gender, for example 1212 women received degrees in the UK in 1920 [1]. By 1950, 3.4% of the UK population had access to a university education [1]. In 1962/1963, ‘in the case of women only 7.3% of the age group entered all full time higher education ...compared with 9.8% in the case of men’ [3]. In 2020 in the UK, 31% of men and 43% of women started university [4]. Like many countries, over a

one hundred period the UK has moved from university being a limited opportunity to a privileged few, towards a ‘mass’ higher education system [5].

As countries move towards ‘mass’ higher education systems with greater heterogeneity in the demographic characteristics of students, developing a sense of academic and social belonging becomes increasingly important to support student achievement and minimise attrition [6]. A sense of belonging, defined here as: ‘valued, included and accepted’ [7] is key component of a successful transition to university. Furthermore, a university student with a sense of academic belonging is likely to have positive emotions about studying their degree subject and have increased levels of academic motivation—which in turn is likely to both enhance student achievement and decrease student attrition [7]. A student with a strong sense of academic belonging will be confident and satisfied about their attainment and achievement levels [8]. However, in a mass higher education system, not all students start university with a strong learner identity or ‘high’ academic confidence [9]. Pedagogic practices to support university students to develop a sense of academic belonging is of central concern to many universities in the twenty-first century [10]. Conversely, social belonging was of great concern in the early twentieth century [11] as universities came under increasing pressure to diversify their homogenous student intake of men and to offer access to women [12, 13]. The Suffrage movement alongside challenges to previously held notions of women’s innate intelligence and women’s role in society were contested and brought pressure on higher education institutions to allow access to women.

The University of London was the first English university to award women degrees in 1878 [14]. Other countries had begun awarding degrees to women earlier than this, for example, a Canadian university awarded its first degree to a women in 1875—a Bachelor of Science degree to Grace Annie Lockhart [15]. Thirty-two women enrolled in Spanish universities between 1872 and 1882, with twenty-eight of these women receiving degrees in Medicine [16]. Australian universities were slightly later than the University of London in conferring degrees on women, starting in 1881 [17]. The University of Cambridge was the last English university to award women full degrees in 1948. Nevertheless, by the end of the 1920s, women’s participation in higher education had reached a high of 28% [18].

The proportion of women graduating ‘remained stuck at 23–24% until the 1960s’ [18]. A number of factors are likely to explain the lack of growth in women entering higher education. In the early twentieth century, teaching was the most feasible career option for women after university, but teaching opportunities became scarcer in the 1930s due to limited government spending [18]. There also tended to be less scholarship opportunities offered by Local Authorities for women. However, the 1944 Education Act, with changes to secondary schooling meant that an increasing (although limited) number of women and working-class men were likely to hold the requisite qualifications to be eligible for a university place.

The Robbins Report recognised that there was an increasing demand for higher education places and not enough spaces. Robbins [3] in particular was keen to attract ‘all young persons qualified by ability and attainment to pursue a full-time course in higher education should have the opportunity to do so’. In terms of the participation of young women, Robbins recognised that although fewer young women were likely to stay at school to study GCE Advanced Levels (A Levels—the standard qualifications for entry into higher education in England, Wales and Northern Ireland since 1951), for the young women who did pass these exams—they were as likely to go into higher education as young men. The percentage of women accessing higher education has steadily

increased in the UK since the Robbins Report. Women were 56.1% in 2020–21 of undergraduates [19], with women being the majority of undergraduates since 2010–11.

The 'reserves of untapped ability', who Robbins [3] had wanted to access higher education included those from working-class backgrounds as well as women. Robbins [3] cited 4% of higher education students as having fathers from skilled manual occupations in comparison to 45% of young people with fathers occupationally classified as being 'higher professionals'. Robbins indicated that a combination of factors resulted in differential participation by social class background: parental income, parental educational levels and parental attitudes towards education. However, in terms of the demand for higher education he recognised that there were still increasing numbers of young people with the requisite qualifications from professional familial backgrounds and that the growth in demand for higher education would not be solely from those from the poorest financial backgrounds. A lack of heterogeneity in socio-economic background of university students remains an issue in many countries [20, 21].

'Participation of Local Areas' (POLAR) quintiles are used as a proxy for socio-economic background by the Universities and Colleges Admissions Service (UCAS). POLAR data classifies local areas based on the proportion of 18 and 19 year olds in that area going into higher education. The POLAR data is analysed using five quintiles—with quintile 1 being the lowest fifth of young people participating in higher education and quintile 5 the highest fifth of young people participating in higher education. UCAS [22] shows the proportion of UK 18 year olds accepted to university by POLAR quintiles. Those from the most disadvantaged backgrounds (Quintile 1) are increasingly like to accept a place at university—23.3% in 2020 up from 14% in 2011. However, the figure of 23.3% is a combined figure of 28.9% women from the most disadvantaged backgrounds attending higher education in comparison to 17.9% of men from the most disadvantaged backgrounds. This skew towards women being more likely to participate in higher education holds true in all quintiles. Whilst in Quintile 5—51.2% of young people attended university in 2020—this was proportionally 31.3% of men and 43% of women. This analysis indicates that women are now more likely to go to university regardless of social class background, but proportionally those from the least advantaged socio-economic backgrounds are still much less likely than their wealthier counterparts to access higher education.

The uneven pattern in the socio-economic characteristics of participants is likely to impact on feelings of belonging for undergraduates in a university environment. Reay et al. [23] seminally described working-class university students as 'contingent choosers'. The term 'contingent chooser' reflects the difficult decision-making undertaken by students from less advantaged socio-economic backgrounds as they consider the potential rewards of becoming a graduate against the challenges and risks they are likely to encounter, particularly in relation to financial constraints, a focus on local higher education institutions and the chances of 'fitting in' in this setting. This can be compared with middle-class students who are more likely to have a familial pattern of accessing higher education with university being seen as a 'natural' part of their educational journey with lots of choices available. However, for much of the twentieth century, it was gender, rather than socio-economic factors that appeared to be a major issue in terms of developing a sense of belonging in a university community with women being in an academic minority.

2. Women as an academic minority

Women remained an 'academic minority' in higher education until the 1960s, when numbers of women began to steadily increase. The push for university

education for women had led to the creation of separate women's colleges at Oxbridge, for example Girton College at Cambridge which was co-founded by Emily Davies (although it was not able to confer full degrees on women) [24]. This women's college was originally named the 'College of Women, Hitchin' in 1869 before moving to Girton in 1873. Women's colleges were typically viewed in one of two ways, the first being that these were 'safe spaces' for women and enabled women to take on leadership roles. However, the second perspective was a sense of 'inferiority' for women not studying at one of the male colleges, which were deemed to be more prestigious. By 1939 all of the colleges of the University of London accepted women (except some medical schools and four women-only colleges). However, women's colleges were increasingly seen as an anachronism and pressure mounted to move towards co-education. Consequently a predominant concern for the women's colleges was that the male colleges would recruit the brightest women students. The University of London achieved full co-education in 1965 [13].

The Oxbridge women's and men's colleges moved more slowly than the University of London towards becoming co-educational with significant changes not happening until the 1970s, with the Sex Discrimination Act coming into force in 1975 (banning discrimination in areas such as Education on the basis of sex or marital status). Women in the previously all-male Oxbridge colleges which began to open-up in the 1970s had been in a significant minority. Furthermore, Dyhouse comments 'It was by no means uncommon for (male) senior members of the former men's colleges to assert that the advent of women had left the "essential character" of the college completely unchanged' [24]. There was limited evidence to suggest that the previously all-male colleges made any substantial attempts to ensure women felt welcome. Although, the civic universities which claimed 'no distinction of sex' also had examples of women being treated with ridicule and consequently feeling the need to keep a 'low profile' in the early twentieth century [25]. Likewise, men were a significant minority in the previously all-women's colleges. The introduction of a BSc General degree in 1957 at Queen Elizabeth College, University of London gradually increased the interest of men to study at this previously all-women college [24]. Furthermore, there is evidence to suggest that the previous women's colleges did everything they could to make the men feel welcome, for example ensuring that they could share sporting facilities with other colleges and ensuring a male academic was part of the welcoming party [24].

Nevertheless, it should be noted that in some subjects, particularly in Arts Faculties, women had always been the majority of students—so subject choice was also likely to have impacted on the extent to which gender shaped a sense of academic and social belonging. Women in the early twenty-first century are still much more likely to study Arts and Humanities [26]. Men are much more likely to study Science, Technology, Engineering and Mathematics (STEM subjects) [26]. 'The difference in the proportions of male and female students within certain subjects remains large. In 2020–21, 82.9% of engineering, technology and computing undergraduate entrants were male, compared to just 13.8% of those studying courses in education and teaching' [27]. Women are currently 26% of STEM undergraduates, but a higher proportion in physical sciences, such as Chemistry at 43% in 2018–19 [28]. Therefore, gender 'mix' is still likely to shape the likelihood of co-educational cohorts for men and women in a range of academic disciplines at universities.

2.1 Gender and the civic universities

Unlike Oxbridge and some University of London colleges, the civic universities had always been organised upon co-educational lines and it became clear that academic co-educational opportunities were popular amongst many students. Teaching spaces and libraries had been 'mixed' from their inception at the civic universities. Although, Wakeling's study [29] of a Scottish University, points to types of social gender segregation in the post-war period, such as the student body opting to keep separate Student Unions for men and women. Gender segregation included separate Halls of Residences. By the 1950s and 1960s university residential accommodation became more widely available to women at civic universities. Moving away from home to go to university became increasingly possible for students as financial support from local authorities became more accessible. However, concerns about propriety for women students meant that their behaviour was heavily regulated in university residential accommodation. Nevertheless, significant attention was also paid to developing a sense of belonging for these young women in their university accommodation.

2.2 Mother-Daughter system

Universities and teacher training colleges developed a strong focus on pastoral care for women in residential accommodation through the 'Mother-Daughter system'. The Mother-Daughter system meant that each new woman undergraduate was allocated a 'Mother' (a student who had already completed their first year at university). The 'Mother' was responsible for the wellbeing of her 'Daughter', with some institutions insisting that each 'Mother-Daughter' pair would sit together during meal-times [30]. However, there was also curiosity about male students and there appears to have been some attempts to escape from the confines of all-women social interactions. Social occasions that enabled men and women students to mix were viewed positively by the women [31].

2.3 'Masculinity' and male halls of residences

Whilst women students reported social events with men students positively in the 1950s and 1960s [31], there were concerns about how male students came to 'belong' socially. There were a number of examples of concerning initiation ceremonies for new male students in halls of residences [32], indicating that particular types of masculinity were dominant in male residences. Dyhouse [24] also reports a number of incidents of high jinks by male students who were admitted to the previously women's colleges. On a number of occasions it appears that this type of behaviour led to male students being asked to leave the institution [32]. Segregation by gender in university life in the twenty-first century in the minority global North is unheard of, with mixed halls of residence accommodation, University Societies and university opportunities open to all regardless of gender. Though, socio-economic background impacts on the likelihood of being able to access the 'university experience' including living away from home [33].

3. Social class composition of universities

Today, students from less socio-economically privileged backgrounds, are likely to make comparisons with their more socio-economically advantaged peers contrasting 'the (stereotypical imagery of the) ideal student life with their experience of gaining

a degree through dedication and persistence' [34]. Historically, the lack of university residential accommodation for women students at the civic institutions, with a general trend for students at civic institutions to commute to university from their family homes meant that social forms of gender segregation and socio-economic disparities, may not have had a significant impact on a sense of social belonging for men and women until university accommodation and improved funding became available in the 1960s. Wakeling's study noted the sense of discombobulation felt by working-class students at a Scottish university with a relatively egalitarian student intake:

I did not meet anyone who was from a similar background to me. (1950s medical student, father a semi-skilled factory worker) [29]

I came from a very low income family and only got to university because of a) opportunities made available through comprehensive philosophy and b) generous student grants. In retrospect, I think that I felt out of my depth culturally and socially. There was little or no help available to prepare working-class students for this very middle-class environment. (1970s graduate) [29]

These interview quotes are indicative of a sense of not belonging due to a lack of social capital. Jackson and Marsden [35] cite their nine working-class boys at Oxbridge, with seven of these young men receiving third class or lower second degrees after promising starts. Jackson and Marsden believed that in part this was related to a lack of social belonging as having worked so hard academically for so long, they began to question the purpose of university and often felt widening barriers in their familial relationships. These concerns about socio-economic background impacting on a sense of belonging or not experiencing the 'ideal' student life do not appear to have abated for students in the twenty-first century:

No, I think one of the reasons why I always felt so negatively about my experiences was because they didn't have that...it would have been a hell of an expense again taking a pragmatic, business point of view, why am I paying to be in worse accommodation, to eat worse food. It just didn't make sense. They had all moved out and had the university, the social life... I didn't have time to get involved in the societies and things like that. So I always felt slightly robbed of that. (Male, working-class university student) [36]

University students in the 1970s and 1980s were still in enough of a minority for maintenance grants to be available and ensure that as Robbins [3] had wanted those who were eligible and able to benefit from higher education were able to do so. However, as university provision has increased further, the burden of funding university education has shifted to the student (via a tuition fee system initially beginning in 1998), with tuition fee loans and student maintenance loans now embedded into the English higher education system. For those students who report being from a less financially advantaged background, the maintenance loans are generally insufficient to cover the cost of living-away from home.

4. Funding arrangements

Historically, funding was largely not an issue for the women who attended Oxbridge as they typically came from privileged backgrounds (although persuading

their families to allow them to have a university education may have been very difficult). The women attending the civic universities were likely to come from relatively financial comfortable families with fathers working in Business or in a profession. It was more feasible for a working-class man to attend university with a variety of scholarships being aimed at men. Although women were generally happier to take the 'Pledge' to teach for five years after graduating and were able to receive financial support through this mechanism [37]. Local Education Authorities had more limited scholarships for women and at times would divide one scholarship between two women.

Although many universities are increasingly sensitive to some extent to the need for paid employment amongst students today, this has not always been the case. Groves [31] comments that there was a general sense of not having much money during 1954–55 at university. However, she also notes the lack of empathy the university had for students engaging in paid employment, with a friend who did not own a coat being told to give up their term-time employment in a public house. The account suggests that there was little acknowledgement of the financial precarity this placed the student in. It appears that financial precarity was not unusual historically, but it is often portrayed as an individual case of financial hardship. The pattern today appears to be a more uniform one which may be in part be due to the better access to university for students disadvantaged social backgrounds and concomitantly the reduction in financial support. Working-class university students in the twenty-first century recognise how their social class impacts upon their experience of university in comparison to middle-class students:

I feel like at uni there's two types of students that you get. I've always been working class and everyone I have been surrounded by have been working class, so I've never really known that other side. But I think that being in that social class has changed my uni experience a lot. With the budgeting, you get some people who get their rent paid for them and I feel like coming to uni and having this set amount and having to budget for that, and I don't really get any help from my parents, which I'm thankful for because it's made me mature a lot quicker. A big part of uni has been learning how to do that, learning how to budget, prioritise. And I feel like maybe a lot of students don't get that. And they leave and they haven't had that life experience that they could have had. (Female working-class university student) [36]

Likewise, the reduction in financial support for many students today means that part-time employment is ubiquitous amongst the least financially advantaged students. There are both academic and social implications for developing a sense of belonging when engaged in extensive paid employment, with the time to study and engage with academic content becoming constricted.

*I needed the money so I couldn't just give up the job ...I did get stuck in some jobs that I hated. At the end of [*large supermarket company] job I absolutely hated it, it was horrible treatment from managers and things but I couldn't afford to leave because it would put me in a bad stead for university so I had to find something else and it had to overlap. (Female working-class university student) [36]*

It is not only working-class students who need to engage in paid employment during term-time under the current funding arrangements, but it does appear that socio-economically disadvantaged students may be working a significant amount of hours:

I got a job up here. So I was balancing uni work last year, that was when I got a job. So it was quite a shock. It was weekend work which was obviously quite good in a way because it was like uni week/weekend work. But the problem was realistically after uni I wasn't doing work on the weekdays because I was tired and I had excuses. So when I needed to be doing work on the weekend, I had work like 9 hours a day and I'd come home. And so it did get quite hard with that, knowing I had to do work in the week whereas I would normally rely on the weekend. That was quite hard at first. But then I spoke to her [manager] and was like I need one day a week work, it wasn't that hard. Because me trying to balance 9 hours compared to some people I know trying to balance 30 hours work. (Female, middle-class university student) [36]

Therefore academic and social belonging is likely to be impacted by the extent to which a student can fully immerse themselves in a 'student identity'. The need to be in paid employment and/or familial commitments can reduce the scope of a student to fully identify as a university student. Therefore socio-economic background is likely to impact significantly on the experience of being a university student in terms of both academic and social belonging.

5. Conclusion


This chapter concludes with suggesting that women's experiences of university have improved significantly as their academic capabilities are valued by fellow students and academics. In fact, gender is rarely considered as an issue, unless related to women-only colleges, subject choice and graduate employment. There remains graduate pay disparities amongst men and women which in part are related to degree subject choice and women are still marginally less likely to be a postgraduate student. However, alongside a strong sense of academic belonging, women are active in university societies and generally have a sense of social belonging socially (with concerns about harassment and misogyny increasingly being addressed by higher education institutions). The progress for women broadly in higher education does not seem to be reflected in the same way in relation to social class. Social class continues to impact on a sense of belonging for many working-class undergraduates, with the emotional injuries of not having the same social, cultural and economic capital as their more privileged counterparts often being keenly felt. Strong learner identities for working-class students at elite institutions are particularly significant for succeeding, but many appear to 'choose' a safer, more local option where being working-class is socially accepted. As attitudes towards women at universities have changed for the better, it is hoped that not only is there an increasing recognition of the value of diversity in demographic backgrounds [38], but that it will be increasingly possible to feel a sense of social belonging and acceptance in learning environments that have historically been accessed only by the privileged few, for those with marginalised identities too.

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Chapter 2

Perspective Chapter: Will the Traditional Teacher Education Models Stand the Pandemics and Cyclones?

Lazarus Obed Livingstone Banda and Jane Thokozani Banda

Abstract

The chapter portrays the impact of COVID-19 and tropical cyclones on scrambled teaching practice supervision in the Southern African Development Community countries. Focus group discussions with student-teachers and field supervisors revealed that the pandemic and the natural disasters highly hampered teaching practice supervision quality. Delayed commissioning of the exercise due to damaged infrastructure and minimal physical mobility between the college and the practice schools impacted the frequency and spacing of field visits. Neither of the players preferred the scrambled supervision model. The chapter emphasizes that face-to-face traditional teacher education methods cannot absolutely stand the taste of pandemics and tropical cyclones. Resilient higher education institutions and requisite structures are key to sustainable quality teacher education amidst cyclones and pandemics.

Keywords: higher education, COVID-19, teacher education, teaching practice, SADC, Malawi

1. Introduction

Around the world, there have been several problems with teacher education, including an inadequate allocation of human resources, particularly in developing nations. Most sub-Saharan African nations have modest GDPs, making it difficult to recruit top candidates for teacher school. The unintended and unplanned adoption of the Free Primary Education and Education for All aims had a harmful knock-on impact [1], flooding the public primary schools with learners. As a result, there was a significant shortage of good infrastructure and skilled labor [2] in many countries, such as Malawi [3]. The high school education subsystem was consequently substantially impacted by the primary school enrollment levels' meteoric growth [4]. As a result, teacher education institutions (TEIs) were required to prepare an equivalently large number of secondary school teachers in the shortest amount of time possible using both traditional and open and distance learning methods [3], putting more emphasis on quantity than on high-quality teacher preparation [4], reducing the length and adversely impacting the mode of practicums.

2. Field experiences from scrambled teaching practice supervision

Several issues can cause institutions to scramble teaching practice supervision. Two of these factors are understaffing and program scheduling. For illustration purposes, let us visualize a possible situation in which a higher education institution uses three distinct zones where student-teachers are placed for their field practicum experiences. Suppose a zone has 20 schools, and each has 13 student-teachers against a team of only 30 teaching practice supervisors with specialized knowledge in various subject areas for students to learn from. In that case, it will be very challenging to map each student with their corresponding subject specialists for classroom observation unless the exercise was scheduled for the whole year.

Because of this, the school's annual calendar must include a block of time dedicated to teaching practice during the academic year. For all of the students to be visited frequently enough, the team in charge of coordinating the teaching practice has no choice but to make compromises regarding the matching of the students' and supervisors' respective areas of expertise (in terms of frequency).

2.1 Trade-off in scrambled teacher education field professional practice supervision

Professionally, teaching practice is a crucial component of teacher education since it serves as the cornerstone of professional development [5, 6]. Depending on the level of education, such as preparing to be a primary or secondary school teacher, and the higher education institutional operational structure and regulatory framework in place, secondary school student-teachers may choose to focus on teaching either one or two teaching subjects [7].

Student-teachers worry about their supervisors' quality [8, 9]. During teaching practice, they expect final coaching, advice, evaluation, and fair assessment [7]. Scholars in teacher education suggest that supervisors should have the relevant abilities, topic knowledge, and pedagogical understanding, as required by principles of teaching and assessment [10, 11] without depending just on theory, to scaffold student instructors and prepare them for classroom dynamics and learner variety [12], due to the discrepancy between theory and practice in the university and after graduation [13].

However, Zeichner asserts forcefully that several worldwide research institutions consider teacher education programs to be of low standing [14]. Likewise, teacher education is frequently trivialized [3]. Realities in the practicum hinder the professional growth of student-teachers [14]. In certain instances, faculty members supervise student-teachers during practicum regardless of the supervisors' specialization or expertise. This kind of practicum supervision is known as the scrambled model. For instance, a Computer Studies instructor may assess French Grammar classes (with zero language knowledge). Without communication, how might such supervisors determine if a pupil is instructing the incorrect material or utilizing the incorrect method? How would the supervisor give real guidance and assistance before and after the lesson delivery to maximize the trainee's potential? In this circumstance, how would the two have a fair pre- and post-conference?

2.2 Learner support

Teaching is a moral activity; therefore, those engaged in it must do it morally correctly [15, 16]. Learner support is essential for the quality of learning, retention,

and knowledge transfer if supervisors are to assist students in making connections between material and practice, rather than just recommending different classroom practices [17]. On the contrary, in many higher education institutions worldwide, not all faculty members have enough interest in teacher education literature, teaching practice supervision knowledge, abilities, and experience [9]. For instance, there is evidence that some student instructors are instructed by graduate students rather than academics [9]. Nonetheless, any faculty member observes, evaluates, and assesses teaching practice lessons without regard for the specializations of faculty and student-teachers [9]. The disparity affects the quality of feedback and the assistance student-teachers get [18]. Despite being specialists in one discipline, such supervisors lack vital TP supervision experience and expertise in other fields by involving them in supervision before successfully resolving their classroom practice strategies [9]. Teaching others to become teachers contrasts sharply with training them for a different purpose and demands special training in the relevant field [9].

Notwithstanding that, practicum remains an indispensable and inextricable component of professional teacher education [5, 19–21]. Despite a plethora of studies supporting the role of practicum in teacher education, alternative research has significantly criticized its impact mainly because of how it is usually carried out [22]. As many schools of professional practice pay less and less attention to helping students obtain experience, the teacher-final learner's only hope is the supervisor [23]; the ethicality of the scrambled practicum model needs to be determined.

2.3 The impact of the pandemics and natural disasters on the scrambled teaching practice mode

The COVID-19 pandemic has revealed the global lag in developing education systems pandemic-resistant and adaptable to other issues of face-to-face higher education. Higher education in the Southern Africa Development Community Region has been persistently adversely impacted by socially regressive, economically unsustainable, and emotionally upsetting policies [24], storms, and devastating cyclones [24–27]. Since 2000, at least 30 cyclones have hit the SADC area, including Cyclone Eline in 2000, Cyclone Japhet in 2003, Cyclone Dineo in 2017, Cyclone Idai in 2019, Cyclone Chalane in 2020, Cyclone Eloise in 2021 [28], Cyclone Ana, Cyclone Batsirai, and Cyclone Emnati [26].

Subsequent displacement, loss of means of subsistence, and depletion of assets exacerbated the poverty levels of affected households, which continue to exacerbate in the larger community [29]. Many education institutions were temporarily closed due to the devastation of school infrastructure and road networks, making them unreachable by road, while others were closed for use as temporary shelters for the displaced masses [30, 31]. Due to the outbreak of the COVID-19 virus, the temporary closure of several secondary schools had a significant impact on field practicum programs. Second, the frequency of practicum supervision was drastically reduced [25] because of COVID-19 prevention and control measures associated with mobility and social separation.

2.4 Student-teachers' experiences from the scrambled TP supervision

The tropical cyclones and COVID-19 had a significant impact on the timing of teaching practice supervision. Along with the lockdowns and travel restrictions put in place to control the pandemic, the rains also damaged practice school roofs and

washed away roadways, which delayed the start of practicum supervision. An interview with student instructors revealed several challenges caused by the unpredictable teaching environment in the SADC during COVID-19 and the days after catastrophic tropical cyclones. According to an analysis of supervisors' portfolios, specialists gave student instructors more precise feedback than nonspecialists (positive or negative). Nonspecialists often gave course observation tasks higher scores than specialists did. Supervisors with more experience seemed to be more critical of employees' performance.

All coordinators from the six TEIs that participated in this study acknowledged that supervisors were not always assigned based on their area of expertise but rather on the TP schedule's convenience, the number of teacher-learners in a zone, and the available human resources. According to coordinators, they first establish the overall number of students in a zone, then, utilizing the human resources at their disposal, they decide on the proper ratios. Although supervisors frequently choose where to send the lecturers, they make an effort to provide a proportional number of lecturers to each site depending on the total number of teacher-learners. Any supervisor on-site may supervise any student-teacher according to the daily timetable.

All student-teachers acknowledged a severe shortcoming in this area when asked how frequently the expert could watch over the students. They said that occasionally, erratic visits worry them. A child may occasionally go the entire term without expert observation, despite other children at the same school receiving more.

The design and implementation of school visiting schedules and the overall effectiveness of supervision are influenced by financial resources, human resources, transportation, school location, school timetables, and the school calendar, according to teaching practice supervisors in Malawi. Some schools are dispersed across the county's interior, far from the main thoroughfare. A zone could only have two vehicles but four different daily routes. Supervisors must make sure that every school is visited within the allowed period. During the visit along the path, some students would not attend classes, while several students might have concurrent lessons with the same supervisor. As a result, several students will be absent. There are several circumstances where students are never entirely under the supervision of experts.

The entrance of supervisors and student-teachers on the scene for supervision and the start of class observation and evaluation, according to supervisors and student-teachers, leaves inadequate time for them to start another session. Usually, they have to rush to another school, attend back-to-back lesson observations with several students at the same school, or join their supervisory team to accommodate the schedules of other supervisors who are far from the current school, which prevents them from having time for pre- and post-conferencing.

The initial visit after deployment is meant to be for general observation rather than evaluation, allowing students to practice their teaching skills in a real-world situation. This differs from institution to university and depends on other factors. However, several student-teachers quickly saw that some students were given grades on their first visit due to COVID-19's constrained teaching practice observation time and the delayed opening brought on by the aftermath of the sweeping cyclones.

Twelve participants concurred that not all supervisors were knowledgeable about subject-specific procedures and content-specific disciplines when asked about their overall view of the scrambled supervisory model during a focus group session. They were not happy with academic supervision since it lacked the professional insight and advice they most urgently needed. When nonspecialists disagreed with what they believed to be the proper instructional strategy, students were

disappointed. If student instructors brought up a legitimate issue with a nonspecialist, they worried about coming out as haughty—unfortunately, children who heard devastating remarks and received poor grades grieved in silence. The student-teachers' overwhelming professional and practical underperformance was attributed to various stressful situations. The presence of a teacher whose emotional stability I am unsure about and who did not have time for a pre-conference to build rapport before the start of the classroom observations added to the tension. Since there was always a measurement component associated with the activity, it appeared that the supervisors were essentially fault-finders in a highly stressful setting typified by intense anxiety. Typically, the student-teachers had the impression that they were taking an exam from a strange examiner with weird test items. Prior to teaching practice, the only professors who led us in micro- and peer-teaching sessions were those who had already supervised us through coursework. When a stranger enters my classroom unexpectedly, I find it frightening. Exclaimed a delighted student-teacher.

However, if a nonspecialist notices inconsistencies between epistemic truths and instructional practices, the paradigm permits brazen student-teachers to cheat. Both students and supervisors agreed that this strategy enables students to blame others when a supervisor doubts a student's sincerity in their classroom behavior. In the end, grades are determined subjectively. In addition to being a curriculum review process where supervisors decide how to help students improve in areas where they have demonstrated weakness, teaching practice should aim to assess student-teachers and award a grade commensurate with their performance. Supervisors lamented that, on occasion, student-teachers would respond to questions by saying that what nonspecialists dislike is what specialist faculty had taught them in college.

Supervisors occasionally observed the same student twice a day due to the short observation period, which gave the student-teacher little opportunity to reflect on the observations and performance from the first inspection before the second. This flagrantly breaches the standards of fair assessment by depriving student-teachers of the chance for a spaced-out review. It significantly affected the test lag effect. The main objectives of teaching practice supervision were the evaluation and grading of student instructors for certification, with minimal focus on learner aid, lecturers' acquisition of new subjects and methodologies, or curriculum creation.

Students and supervisors have different ideas about the right amount of monitoring. Coordinators liked to meet with students on the same subject frequently. Students resented being often observed by nonspecialists because they were frightened by managers since they were given insufficient assistance.

Some pupils would have to wait a long time before they could watch due to scheduling concerns. I want to be observed as much as possible for feedback, not grading, bemoaned one student-teacher. Realizing that all of your colleagues have at least three supervisors, but you have one observation from a nonspecialist, is unsettling. You already feel as though you are struggling and require more supervision at this point. If you already have two supervisors, you pray that no one else will take the opposing side.

3. Conclusion

This chapter has emphatically demonstrated that traditional face-to-face teacher education methods cannot stand the taste of pandemics and tropical cyclones.

Resilient higher education institutions and requisite structures are key to sustainable quality teacher education amidst cyclones and pandemics.

The lack of a unified policy governing teaching practice is partially to blame for the inadequacy of learner assistance during teaching practice in higher education. The main goal of the activity would suffer more significant damage from nonspecialist monitoring than from professional observation. Some teaching practice supervisors would get into class observation without engaging in a pre-conference to better get to know the student-teacher and provide advanced guidance. Nevertheless, this can be when the kids require scaffolding [9]. Institutions must understand that producing teachers who can represent them intellectually and professionally through a standardized procedure is their most significant source of pride. Therefore, they must allocate enough funding for this equally crucial stage of teacher education far in advance of the exercise's deadline to avoid negatively affecting the program's quality. In order to provide the core business the attention it so richly deserves, proper resource mobilization, allocation, and appropriation must be an ongoing activity in institutions of higher learning. Although TP can provide input on implementing the curriculum, it must be kept in mind that TP supervision is the last opportunity for a student-teacher to get assistance from faculty members. If TP is a way for college lecturers to hone their instructional techniques, then such TP sessions cannot be graded in a way that affects the student's award.

Developing nations must devote more funds to education and ensure that they are invested wisely and for specific purposes. It might be worthwhile to try out virtual classroom observation now that COVID-19 is available. As a result of the supervisors not serving as carrier agents and going from school to school, the likelihood of transmissions will be reduced. As groups of supervisors collaborate on each observation, it will help improve the standardization of observation and comments.

Faculty should be committed and compassionate experts who can mentor, scaffold, and give authoritative subject knowledge assistance [9, 14]. For high-quality teacher education, their practical supervision functions are essential [32]. Before monitoring student-teachers in the final school-based TP, new and inexperienced faculty members should be well assimilated and participate in clinical supervision for fairness and efficiency. In all areas of supervision, only professionals should oversee students ensure adequate feedback. Pre-conference direction and post-conference feedback are crucial for effective learner support [8, 33]. As they interact with their students regularly, higher education institutions should create a conducive climate for academic success. To control and synchronize practice, a formal national policy that is well articulated must be created.

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Chapter 3

Perspective Chapter: Resilience of Tertiary Education Students Living with Disabilities – Lessons to Learn from COVID-19 Era

Faith Kurete

Abstract

This chapter intends to look at the resilience of tertiary education students living with disabilities and the lessons that can be drawn from the COVID-19 era. The 1975 UN Declaration on the Rights of Persons with Disabilities includes the right to education, employment, health services, etc., which has seen a number of tertiary institutions enrolling students living with disabilities of varying conditions. COVID-19 caught most people unaware and it changed the face of education from face-to-face to online or remote learning. The lecturer and students were ill-prepared for this, psychologically and in terms of skills to operate ICT gadgets for teaching and learning purposes; however, learning had to take place. This impacted negatively to students particularly those of hard hearing and the visually impaired students. There are lessons that can inform tertiary institution managers on how to improve inclusivity in the tertiary institutions they lead.

Keywords: resilience, disabilities, COVID-19, tertiary education, support system

1. Introduction

Inclusive education has been globally recognised as a philosophy for ensuring that there is equality, justice and quality education for all children, regardless of conditions they may have. This accommodated students living with disabilities who have been traditionally excluded from mainstream education due to disability and other characteristics [1]. Inclusive education is a programme that essentially enables all learners with or without disabilities in the life and work of mainstreamed settings to meet his or her learning needs as adopted from the 1975 UN Declaration on the Rights of Persons with Disabilities. Inclusive education enables all learners to have equal opportunity to jointly undertake learning situations under the same roof without discrimination. Therefore, any learner who is considered to have a deviation from others as a result of a loss or damage be given a chance to belong to the mainstreamed setting. The damage or loss can either be physical or mental development should be given the right to enjoy the benefits that other learners are enjoying in the same

learning environment as those who do not have disabilities. This implies that students living with disabilities should not only have access and right to education but they also have the right to be incorporated into the mainstream education system [2].

Disabilities manifest themselves in a wide range. Persons living with disabilities may have challenges that can interfere with the development of learning, mobility, social growth and adjustment. Persons living with disabilities present unique educational needs. These educational needs are best addressed early in life [1]. These educational needs include concept development, improving listening skills, and development of study and research skills [1].

Institutions of learning should have an appropriate inclusive learning environment to cater for students living with different ranges of disabilities. These include friendly infrastructure, teaching facilities, and both materials and equipment. Human resources and other related services are also essential to meet the needs of students living with disabilities as well as their well-being within the learning institutions [3].

2. Theoretical framework

2.1 Bronfenbrenner ecological theory

Bronfenbrenner's ecological theory of development shaped and guided this study. The theory consists of five interrelated types of environmental systems, namely, micro-, meso-, exo-, macro- and chronosystems, the levels range from small, closer settings, which directly influence development, to the distant settings (Bronfenbrenner,1979) [4]. This theory is ideal in this study as it will

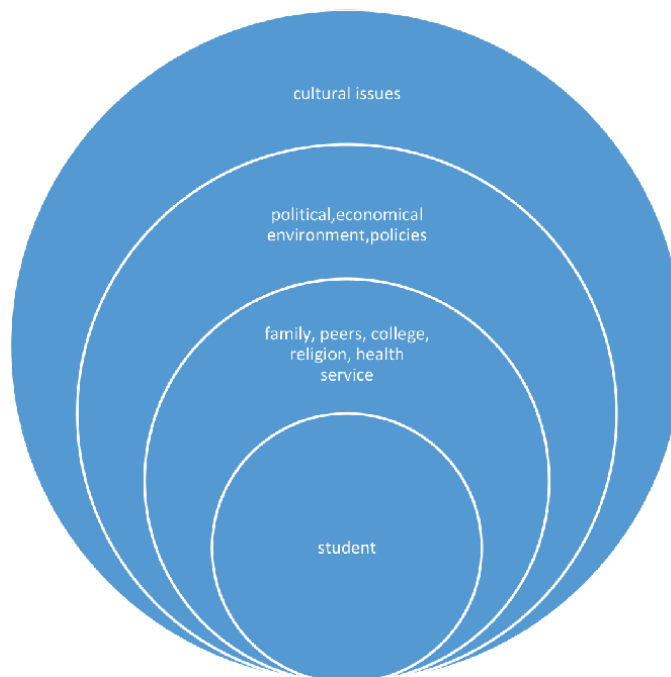


Figure 1.
Model of Bronfenbrenner ecological theory as it will be presented in this study.

help in explaining how the environment helps to promote positive healthy development among students living with disabilities. The theory also helped the researcher to have a good understanding of how relations between activities and other settings influence the developmental process of the student as shown below in **Figure 1**.

Human development is based on the tenet that there are interactions among systems, which affect the young individual's change, growth and development. The pressures of one level are felt by the other level until it gets to the student at the centre of the system [5]. The student is affected by what is happening in all the systems that surround him/her.

Development of a human being is assumed to be a product of four interacting properties namely 1) person, 2) context, 3) process and 4) time. Person refers to factors that interplay with the setting to influence development, such as age, gender and competency. In this study, person implies the students living with disabilities, the roles, that they occupy within the setting and how the activity affects, vary across individuals. Context factors are the settings, which Bronfenbrenner (1979), named the micro-, meso-, exo-, macro-, and chronosystems. The student is at the centre of these settings.

Process factors imply complex reciprocal exchanges between person and context. It is the interactions between a person and context. That is interactions between the student and his/her environment. Development is mainly ignited by closer processes that occur regularly over extended periods of time. Time is construed at various levels of the ecological system. The students' developmental process is also influenced by the institutions they are affiliated with, as they spend a minimum of three years in institutions of higher learning.

The importance of family-school partnership is essential in uplifting the students' development and well-being. Every parent is committed to ensuring the well-being of their child, regardless of the socioeconomic level, ethnic group and/or type of family structure. They state that what we should do is to try to change the circumstances, not families where the student is coming from [6].

2.2 Self-determination theory

Self-determination theory (SDT) is a theory that was developed by Deci and Ryan in 1985. They state that all human beings thrive to grow, develop, improve their surroundings and enjoy life to the fullest. Human beings are able to do so if their needs are met. The three human needs are competence, autonomy and relatedness [7]. The researcher chose this theory to guide the study as it thrives to explain the importance of three needs for ideal intrinsic motivation, psychological growth and well-being, when the three needs of a human being are met, a person feels full of energy and eager to face life with its possibilities and challenges.

Autonomy refers to when people have a need to feel that they are the masters of their own destinies and that they have at least some controls over their lives. Most importantly, people have a need to feel that they are in control of their own behaviour [7].

Competence focuses on knowledge and skills individuals have. People have a need to build their competence and develop mastery over tasks that are important to them [7]. Relatedness (also called connection) refers to people's need to have a sense of belonging and connectedness with others. Each of us needs other people to some degree.

SDT is a theory that links personality, human motivation and foremost functioning. It posits that there are two types of motivation that are intrinsic and extrinsic. Both intrinsic and extrinsic motivations are effective forces in moulding individuals' personalities and the way they behave [7]. Extrinsic motivation is a drive to act in positive methods that come from outside forces and outcomes in outside rewards. While intrinsic motivation comes from within. There are innate forces that motivate us to act in certain ways, such as our core values, our hobbies and our private sense of morality [7].

This theory is relevant to this study in that if the three human needs are met, students' resilience is enhanced. The students living with disabilities like anybody else need intrinsic and extrinsic motivation to help them have eager to achieve their potential and be resilient.

3. Literature review

3.1 Challenges faced by students living with disabilities

One of the most difficult challenges faced by students with disabilities is the preparedness of the institution itself to accept students with disabilities. The faculty's lack of understanding about disabled students also contributes to the difficulty of accommodating students with special needs because they are not familiar with the services on campus [8]. The students living with disabilities face challenges from the institutions as well as from peers, lecturers and also students at learning institutions [9].

The provision of assistive devices has a facilitative role, which in turn has a positive impact on the functioning of students with visual impairments in a university. A study of the inclusion of students with disabilities in a university in Zimbabwe quoted a student with visual impairment who expressed appreciation for the provision made by the Disability Resource Centre, which was established by the institution [10]. This showed that challenges of students living with disabilities were minimised through the services availed at the centre. Generally, positive experiences occur when the students living with disabilities have access to funding for learning support needs and appropriate equipment [11, 12], other studies revealed that students with visual impairment find it difficult to trust anyone, and this might be a result of their inability to take in visual cues [13].

There is evidence to show that students with visual impairments are more likely to face isolation and rejection as compared to their sighted peers [14]. Although this may be the case, if inclusion in the university is to be meaningful, the students living with disabilities need to socialise with other students. Students living with disabilities are scarred psychologically and socially if they are enrolled in a university setting where marginalisation and exclusion of students are practised [15].

Students with disabilities particularly the visually impaired may be subjected to misunderstanding and outright prejudice from their sighted peers, accusing them to be faking a disability [16]. Therefore, the students with visual impairment may be caught in a dilemma. Thereby making self-assessment that is most of the time made in a context of severe anxiety. This often led to a self-perception of inefficacy and/or making excuses for incompetent behaviour [17].

3.2 Resilience

Resilience is a successful outcome of healthy adaptations during stressful life events [18]. Resilience is often viewed in the psychological context to refer to the cognitive ability to remain psychologically stable in the face of difficulties [19]. It is a psychological phenomenon, a perception of an individual inner strength that allows for the physical manifestation of that strength, which is being able to come out of adversities strong and function to one's highest potential [20, 21]. Resilience in individuals is exhibited by their adaptive coping skills and ability to see and take advantage of opportunities for learning and development from stressful events. Therefore, resilience levels in students living with disabilities and the manifestations of that resilience are related to effective adaptive resources to academic stress [21].

Resilience is the ability to come out stronger after exposure to hardship, pressure, family psychopathology, anxiety, stress, and trauma [22]. Resilience is defined as the "incidence of factors that are protective such as personal, social, familial, and institutional safety nets, which enable the individual to defy life stress" [23]. Research has shown that the resilience of an individual at any moment of time determined the presence of protective factors versus the presence of risks [24]. An individual is said to be resilient if they have been exposed to risks or trauma of any sort and come out functioning well.

Lazarus expressed that an individual's ability to successfully manage stressful events and overcome life stress is resilience [25]. In terms of student's academic life, resilience deals with high levels of achievement, motivation and performance in spite of the stressful conditions that place individuals at the risk of poor performance and dropping out from their educational streams such as colleges and schools [26]. Resilient students are highly optimistic and have the ability to foresee the problems they encounter and solve them logically. They also have the ability to advocate for creative solutions to problems.

The four patterns of resilience from individual resilience synthesised by Polk [27] are the following. Firstly, dispositional patterns are aspects that promote resilience and are related to physical and ego-related psychosocial qualities. These include a sense of independence or self-reliance, a sense of basic self-worth, good physical health and good physical appearance. Secondly, rational pattern stresses the close relationship of an individual in a society through relationship with others. The relationship that an individual has with his/her society may enhance or hinder the individual's resilience. Thirdly, the situational pattern addresses the aspects involved in a situation that is more stressful and the personality traits of the individual who is handling it. It also focuses on the individual's problem-solving ability, the ability to evaluate situations and responses, and the potential to take action in response to a situation. Fourthly, the philosophical pattern, which is built on the individual's view of the world, beliefs for interactions and self-development promotes resilience in individuals.

3.3 Accessibility of online learning

Accessibility in online learning environments is effective usage of online course content by people who have visual, cognitive, physical and mobility impairments [8]. The design of many online learning courses erects barriers to the full participation of students and instructors with some types of disabilities [9]. Although there are many assistive technology tools available to help people with different disabilities to use computers and the Internet, these tools do not remove all access barriers [8].

4. Methodology

This study was guided by the transformative paradigm. This paradigm was ideal for this study as it focuses on lived experiences of diverse groups, which were traditionally been left out. The researcher gets an opportunity to interact with them and their voices on their life experiences with the aim of advocating for social justice. The transformative paradigm additionally offers a framework that incorporates the complexity within the community of disability and leads to full knowledge and understanding of the real lived experiences of the participants. The researchers who use transformative paradigm should channel the findings of their studies towards improving the lives of the participants.

The qualitative approach was used in this study. Transformative paradigm does not have its own specific set of practices or approaches. In this study, transformative paradigm complimented well with qualitative approach, as it necessitated dialogue between the researcher and the informants. The researcher gets more data for the study through careful listening and valuing each informant's voice.

Qualitative research makes sense of and meaning of subjective experience of individuals. In the case of this study, the qualitative approach helped the researcher to make sense of and understand the lived experiences of students living with disabilities in tertiary institutions by exploring their resilience.

4.1 Population and sample

The population of the study was tertiary institutions in Bulawayo, Zimbabwe. The researcher initially wanted to have a sample of students living with a variety of disabilities. However this was not possible with the hard of hearing as there was communication barrier. An assistant who had prior agreed to assist with communication with the hard of hearing and deaf students became busy at the last moment. Hence the sample comprised of the visually impaired students only.

Purposive sampling was done and come up with a sample of four students living with disabilities. Two of the students for this study comprised three students with blindness and three with low vision, making a total of six students. It was necessary to keep the sample small enough to enable a thorough analysis of data.

4.2 Data analysis

The researcher transcribed data that was generated through the semi-structured interview. The transcribed data were coded and the researcher came up with themes. Data were then analysed using the themes that emerged after coding data (Silverman, 2011).

5. Results

5.1 Challenges faced by students

Psychological issues: Students living with disabilities stated that they experienced psychological issues. These psychological issues emanated from the psychosocial issues as a result of effects of COVID-19 lockdown. In the absence of peers and

lecturers, students living with disabilities felt a huge gap in their support system. The gap, the students living with disabilities felt, led them to be anxious about their academic performance. The era COVID-19 saw the introduction of online lessons due to lockdown. Students did not have access to the institution's counsellor as people were working from home. This applies to students who have institutional counsellors.

As persons with disabilities we face more challenges as compared to our fellow students who do not have disabilities.

We have more psychological problems than our fellow students. Apart from the general pressures that a student in tertiary level face, we need constant counselling on acceptance of the disabilities that we have.

Another informant had this to say, *we blame ourselves and others for the disability and we need to be helped to accept our conditions so that we can concentrate on school work.*

We will be worried if ever we be able to engage in a meaning lasting love relationship.

5.2 Access to equipment and material

Students living with disabilities feared failure to complete their studies within the minimum timeframe for the programmes that they are studying. The students with visual impairment in particular had challenges accessing learning guides and materials sent on learning platforms that were used by most institutions. The materials sent on learning platforms were mostly visual. Hence, those students with visual impairment had to depend on others to read out the information for them. One student noted that some of the people or family members that they relied on to read out to them could not pronounce the words properly. This made understanding the concepts difficult on their part.

I spend most of the time with children at primary level and it will be a burden to ask them to read out to me. Anywhere I once tried it but they cannot pronounce words correctly then I will not understand.

Another student had a different opinion on the subject of failing to access learning materials in pdf format. The informant indicated that there is an application on most ordinary phones, which converts pdf documents into audio. This is the application of the informant's use so s/he does not miss out on any learning materials sent in pdf format. Then, informant added on to say that some students are not aware of the application on phone due to lack of exposure.

I use an instant reader application that converts pdf documents into audio. It reads out what is written on the pdf document. It is available on affordable phones, which most people are using.

Students living with disabilities do not have access to technological gadgets for learning purposes. A few are able to own a laptop and a phone that they can use to surf the internet. Those who have the gadgets noted that some of the websites are not user-friendly to students living with disabilities particularly the visually impaired. Students noted that the institutions did little to nothing in assisting to cope with their studies during the lockdown due to COVID-19. It was mentioned that institutions were ill-prepared for the situation that was brought up by COVID-19. The instructors were also learning how to use technology media for teaching.

Most institutions do not have technology media that can accommodate students living with visual impairment. This becomes a challenge for the instructor or lecturer who would be conscious that there is inclusion in their educational set-up.

We need donations of ICT gadgets for learning purposes as education is adopting online learning.

Donations of gadgets would help us a lot as most of us come from poor families that are struggling to send us to tertiary education.

5.3 Support system

5.3.1 Institutions

Informants of this study indicated that they had support from members of their various faculties in helping them continue with their studies. The lecturers would go out of their way to try to meet the needs of students living with disabilities. One of the informants in this study noted that the lecturers had no idea of how to handle or work with students with disabilities.

I had to teach them how to handle me, as they as I was their first encounter with a person living with a disability. I could sense their fear of lack of knowledge on how to handle me but they could not send me away because of the blueprint that states that everyone should be given an opportunity to education.

Knowledge of policies assisted the informant to be brave to enrol for studies and want to pursue education. The statement of the informants acknowledged that the institutions that they enrolled in were ill-prepared to accommodate students living with disabilities.

I had not indicated that I have a disability, I later showed them my certificate of disability after I have been admission to the institution. Said another informant.

The other informants indicated that they had declared their disabilities and were accepted in their conditions. However, they all agreed that institutions were not well prepared to accommodate students with disabilities. The institutions were ill-prepared in terms of equipping lecturers and other staff members on how to meet the need of students living with disabilities.

5.3.2 Family support

Students living with disabilities, though they lacked support from their learning institutions, had to depend on family members a lot for support in their studies. Family members play an important role in supporting students living with disabilities. The support ranged from social and emotional to academic support. Families have to go out of their way to ensure that the special needs of students living with disabilities.

Had it not been for the support that I get from my family member's I could not be pursuing my education.

Most of us persons living with disabilities we come from disadvantaged families, it takes a lot of effort on our families to send us to school.

I get most support from my family and personally I have an inner drive to be independent, and I believe that education is the route to be independent.

5.3.3 Peer support

Informants of the study indicated that they also get support from peers while at institutional campus. These peers would act as their guides and give assistance in many ways. The informants regarded their peers as members of their extended family. They expressed gratitude for the way their peers treat and relate with them.

My peers are like my brothers and sister at the campus, they cheer me up and help me get to lecturers' office for assignment submission.

Another informant had this to say: *I feel like they are family to me.*

6. Discussion

The study found that a supportive environment assisted in the development of the participants' resilience. The positive impact of a supportive environment resonates with the findings of a scoping review of resilience in higher education students by Brewer et al. Students living with disabilities noted that they receive support from immediate family, peers at the institutions and peers from their communities as well as the campus staff members.

Accessibility of online learning material can create a barrier to students living with disabilities and to full participation in education. This collaborates with the findings of this study. Students living with disabilities stated that they experience challenges in accessing some of the websites with learning material. The findings also resonate with Chataika [4] that students with visual impairment were grateful for the donations of gadgets they had received. In this study, students living with disabilities indicated that they would appreciate and most welcome donations that would assist them in their learning.

Findings of this study depart from what Hasnah et al. 2010 found on the source of problems faced by students living with disabilities. Hasnah and colleagues noted that problems of students living with disabilities do not only come from the faculties but also from peers and lecturers. This study found out that peers and lecturers are very supportive though the system is ill-prepared to accommodate them fully. They cited the failure of faculties to provide learning gadgets and equip members of staff with ICT knowledge that embraces students living with disabilities.

7. Conclusion

The study can conclude that inclusive education has not been fully embraced in most institutions of higher learning. Most of the institutions of higher learning do not have facilities to cater for students living with disabilities. The lecturers had little knowledge of the use of ICTs especially in accommodating students living with disabilities, particularly the blind and visually impaired.

8. Recommendations


Lecturers to have basic knowledge of handling students living with disabilities. They should also be empowered on use of ICTs for learning and teaching purposes that includes webs for students living with disability. Resource centres should be established in every tertiary institution if inclusion is to cooperate holistically. Students support services to establish online helping centres to assist students with psychological issues while away from the learning institution. As in the case of lockdowns, due to COVID-19, students were learning online; hence, psychological services be made available online.

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Chapter 4

Social Impact through the SDGs: Case Studies in Higher Education

Belén López

Abstract

Since the approval of the SDGs by the United Nations in 2015, public and private institutions worldwide have been working to meet the global goals identified in the 17 SDGs. This research is based on the analysis of the contribution of universities in Spain on these challenges to promote sustainability considering public information from international rankings. Following this, the main objective of this chapter is i) to understand how universities generate social impact, ii) how rankings measure the impact on SDGs through the university activities involving their stakeholders, and iii) how these actions affect people and society. The results, based on the scores from The Higher Education Ranking 2022, show that the best performance in Spanish Universities is related to the SDG 3, SDG 4, SDG 5, SDG 7, SDG 8, SDG 11, SDG 16, and SDG 17. In addition, the success of an educational project for social inclusion is presented (SDG 4), where the capacity of universities to generate social impact is shown through an original program using a higher educational method and created for people at risk of exclusion, in order to increase their employability.

Keywords: higher education, sustainability, SDGS, inclusive education, social impact

1. Introduction

Since the 2030 agenda was adopted at the United Nations (UN) in September 2015, the 17 SDGs have been developed in public and private institutions around the world [1] and signed by more than 190 countries. Also, several universities have increased their interest in implementing and reporting their activities following the SDGs of the UN, in a similar context than other industries.

Moreover, universities have an important role to facilitate the transformation of society educating people for a sustainable future and considering the impact of climate change and other global risks for humanity [2]. Therefore, universities are including the SDGs in their strategies through teaching, research, and projects proposing many solutions and measuring their impacts. Consequently, it represents a clear advance to better understand the social impact of universities considering their responsibility in educating people for a sustainable society [3].

To understand the level of progress in higher education, we need to analyze some studies that show what universities are working on and which SDGs they are implementing in several activities. In this sense, some studies have been carried out to obtain this global vision [4] explaining the connection between universities

and sustainable development. In addition, we can evaluate the global results from a quantitative perspective in different rankings, such as The Impact Ranking, that show the progress of universities in this area [5]. Additionally, many universities report annually on their sustainability policies and include some practices/activities and projects on their corporate websites.

However, the quantitative analysis provided by the rankings can be completed with an appropriate strategy in universities. These institutions can internally connect the purpose and values of the institution with research applied to the different areas of knowledge, and with student learning in all areas of knowledge. In addition, this level of progress is facilitated by different international networks (Sustainable Development Solutions network) to implement good practices in the educational sector. All this makes it easier to progress on sustainable development through higher education, as well as the analysis of global needs adapted to specific environments through the SDGs. All this should increase the number of studies with specific results on the level of progress of higher education in achieving a sustainable society.

This study provides an analysis of the contribution of Spanish universities based on the data provided by The Impact Ranking 2022. To this end, the scores in each SDG are shown, which makes it possible to identify the strategic areas for these universities. In addition, to have a qualitative approach to the implementation of the SDGs, a case study of inclusive education developed at ESIC is explained. This project is based on the training provided to groups at risk of exclusion through a communication skills course carried out with university methodology whose objective is to increase their employability. All of this contributes to generating a social impact in the community through quality education (SDG 4).

This chapter is structured as follows. The next section shows an analysis of the role and contribution of higher education to sustainable development through the implementation of the SDGs. Below are the Spanish Universities ranked by SDGs score in 2022. The following section is a case study based on inclusive education at ESIC University. Then, a discussion is generated about the main contributions of higher education in the world and finally, some conclusions are summarized in this study.

2. Universities' contribution to sustainable development

The capacity of universities to influence the transformation to a more sustainable society is relevant to educate future sustainability leaders and supporting the SDGs implementation [3]. In fact, university staff and students are actively working towards a sustainable world [6]. Moreover, the integration of diverse disciplines improves students' problem-solving capacities, changing their minds to create solutions for different challenges [7], promoting coherence between theoretical discourse and action, and between theory and practice [8, 9] to face global risks [2]. In other words, higher education also provides socio-ethical skills to students through projects with a social impact and connecting the classroom to the community [10] and developing learning activities with a social purpose [11].

The role of universities is strategic for sustainable development and its relationship with stakeholders [12, 13] through different dimensions: education, research, outreach, and management [14–16] where all the experiences in universities can be relevant in social, economic, and environmental transformation. Consequently, stakeholders should be involved in sustainable development through academic discussions [17] and discussing sustainability with students, and administrative and

teaching staff [18]. In sum, the challenge is creating a sustainable and global mindset that should be incorporated in academia connecting studies and best practices and measuring impacts to know the contribution of educational institutions. Moreover, educators need to construct their understanding of sustainable development that can guide them in their curriculum planning and teaching. After this critical analysis, understanding the sustainability concepts, issues, and risks, they will shape their resultant pedagogical practices [19]. This is a dynamic process in constant evolution implementing best practices, case studies, and materials for the students.

Higher education is a transformational agent with a tremendous impact on students' habits and contributions to a prosperous society. Thus, sustainability needs to be at the center of the modus operandi in universities and their organizational culture [3] because universities are considered influential players that foster the growth of partnerships with governments and communities [20]. In fact, more than 300 universities have partnered with the UN to create a network for sustainability called Higher Education Sustainability Education [21] to identify relevant aspects for development and considering that Higher Education Institutions (HEIs) play a critical role in supporting and accelerating SDGs' success through research and education [4]. However, there is a need to create an appropriate guideline in universities to facilitate the evolution of SDG achievements [22]. Some scholars [23] proposed a model to engage in promoting sustainable development activities in the three core areas of HEIs: teaching, research, and serving society, projects and best practices have been developed in universities worldwide. It requires using indicators of progress in SDGs and the identification of accountabilities which involves universities and their stakeholders [24, 25]. Some universities use the metric management model (MMM) to evaluate their performance [26]. The MMM is a system based on quantitative, which summarizes the right behavior with a numerical score [26], such as Times Higher Education Impact Rankings [5], among others., to have a quantitative measure of their performance against the SDGs. This ranking allows having an idea about the level of progress from HEIs worldwide and it was evaluated empirically by some scholars [4] following the MMM system. The results show that SDG9, SDG3, SDG13, SDG12, and SDG4 positively increased the obtained general ranking score in their research [4]. This ranking also demonstrates that the number of universities committed to SDGs across countries has increased in the last years (467 in 2019, 768 in 2020, 117 in 2021, and 1406 in 2022) [27].

In recent years, some studies have been connected to the impact of universities on sustainability [28, 29], more studies are needed to know how universities can be more sustainable through the SDGs using specific indicators and connected with the 2030 Agenda. Also, there is the need to align strategic planning with all hierarchical levels, to inform higher management's decision-making regarding SDGs [30].

3. Spanish universities ranked by SDGs score (THE)

The Times Higher Education (THE) Impact Rankings are global performance tables that assess universities against the United Nations' Sustainable Development Goals (SDGs). We have selected this Ranking because The Times Higher Education use calibrated indicators to provide comprehensive comparison across four areas in its methodology: research, stewardship, outreach, and teaching evaluating excellence in Higher Education. The 2022 Impact Ranking is the fourth edition, and the overall ranking includes 1406 universities from 106 countries/regions.

The impact Ranking 2022	Institution	Country	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17	Overall Score	
101-200	University of Barcelona	Spain	82,2	87,2	90,3	83	88,1	87,9	82,1-88,5												
	University of Girona	Spain	64,5	77,7	89,7	85,5	82,3	79,8	66,7	46,1	68,2	80,9	82,1	72,5	72,1	82,1-88,5					
	University of Jaen	Spain	57,6	52,2	68	79,8	80	90,3	75,8	81,4	49,3	65,7	65,6	62,2	67,4	64,4	77,5	83,5	89	82,1-88,5	
	University of Murcia	Spain	73	77	77,5	86,1	80,5	85,5	82,1-88,5												
	Rovira I Virgili University	Spain	57,3	49,7	71,5	88,3	85,8	58,9	71	71,9	74,3	75,9	59,1	56,6	83	51,3	68,9	82,1	82,5	82,1-88,5	
	University of Valencia	Spain	72,2	47,4	83,8	93	74,1	72,1	51,6	74,3	52,4	86,4	76,2	69,5	58,5	64,9	70	85,6	74,1	82,1-88,5	
201-300	University of A Coruña	Spain	48,7	41,2	64,7	79,7	71,8	67,1	64,1	69,4	53,1	59,2	62,1	75,3	44,7	51,6	69,8	67,5	82,5	76,9-82,0	
	Autonomous University of Barcelona	Spain	78,4	85,6	72,9	75,9	75,7	66,9	63,1	70,6	76,9-82,0										
	University of Burgos	Spain	56,7	52	82,2	75,5	31,3	65	82,6	69,5	81,7	76,9-82,0									
	Carlos III University of Madrid	Spain	88,5	58,1	49,8	85,6	82,4	82,0													

The impact Ranking 2022	Institution	Country	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17	Overall Score
	Comillas Pontifical Univ.	Spain	64,7					83,8	87			64	62,6	58,4	74,8			70,9	70,5	76,9–82,0
	IE University	Spain				78,5				81,1		84,7							80	76,9–82,0
	Jaume I University	Spain		64,5		71,9	91,6	85,4										73,7	66,9	76,9–82,0
	University of Malaga	Spain	72	55,1	80,3	87,2	77,8	59,3	66,1	82,5	77,7	69,8	79,9	68,2	52,2	50,1	55,2	68,4	62,8	76,9–82,0
	Universitat Politècnica de Catalunya	Spain	58	45,3	50	63,7	51	48,7	71	75,1	84,1	64	80,8	66,6	77,6	74,1	76,2	60,3	72,1	76,9–82,0
	Polytechnic University of Valencia	Spain	40	61,9	33,4	80,9	60,1	50,8	55,8	80	88,6	60	47,5	81	55,3	46,2	46,6	39	70	76,9–82,0
	Pompeu Fabra University	Spain			71,9	73,9	80,5					59,6			74,8			82,9	76,4	76,9–82,0
	University of Vigo	Spain	62,7	48,2	45,8	78,5	75,7	62,6	87	71,3	75,7	57,8	72,6	56,6	55,1	65,7	50,8	81,8	77,4	76,9–82,0
301–400	University of Lleida	Spain				83,6	82,3					66,5							67,7	72,0–76,7
	Miguel Hernández University of Elche	Spain	58,8	55	71,6	70,7	71,3	51,4	30,7	81,6	81,3	66,3	66,9	56,6	62,7	45,7	50,1	63,6	57,4	72,0–76,7

The impact Ranking 2022	Institution	Country	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17	Overall Score
	Public University of Navarre	Spain	59,3	78,3	60,6	69,4	67,5	49,8	63,4	67,1	48,7	46,3	56,3	65,3	31,8	34,6	62,8	73,2	82,8	72,0-76,7
	University of Salamanca	Spain	67,5	58,2	67	67,6	72,7		57,4	57,2		63,1	70,4		37,9			72,9	76,3	72,0-76,7
401-600	University of Alcalá	Spain				78,2	75,2						57,7						65,1	65,0-71,9
	Universidad Católica San Antonio de Murcia	Spain	33,3	36,3	73,5	82	64			72,9		41	60				53,4	46,8		65,0-71,9
	Complutense University of Madrid	Spain			74,2	57,5				57,9								62,4	73	65,0-71,9
	ESIC	Spain				80,7	70,1			73,1		75,5						45,7	49,4	65,0-71,9
	National University of Distance Education	Spain	34	19	29,2	48,5	61	53,7	52	58,9	38,7	54,6	31,9	45,2	44,6		75,9	85,8		65,0-71,9
	University of Oviedo	Spain	69,7	23,1	46,7	52,5	42,8	33,3	62,2	70,5	54,9	35,3	41,9	58,6	43,4	46,3	31,7	67,5	60,1	65,0-71,9
	University Rey Juan Carlos	Spain	19,8	34,6	49,8	41,8	57,7	43,1	42,6	68,8	27,6	38,8	48,6	81,4	58,8	32,6	48,5	55,6	62,5	65,0-71,9
	University of Seville	Spain	66,9	59,3	76,2	38,3	62,5	70	67,8	57,8	67,9	44,2	54,6	45,5	37,8	44,3	31,7	61,7	43,9	65,0-71,9

The impact Ranking 2022	Institution	Country	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17	Overall Score	
	Technical University of Madrid	Spain	43				57,7				79,2		54,5		64,6					66,5	65.0-71.9
	University of Valladolid	Spain	53,9	48,2	56,2	60	57	30,5	54,4	49,8	49,1	31,4	88,6	37,7	57,2	34,4	50,5	71,9	49,4		65.0-71.9
	University of Vic - Central Univ of Catalonia	Spain			74	69,7	78,9	39,8	40,6	58	14,3	60,2	42	51,8	44,7			34,3	40,1		65.0-71.9
601-800	University of Alicante	Spain					65,4	45,3										61,2	59,4		57.3-64.9
	University of Almeria	Spain			52,3	41,4	58,1	53,3	38,9	76,4	51		62,3	24,9	55,3				31,8		57.3-64.9
	University of Cadiz	Spain			64,7		63,9									67,9			62,6		57.3-64.9
801-1.000	CEU University	Spain	44,6		77,8	58,5			42,6										45,2		50.3-57.2
	Mondragon University	Spain				71,9				66,8			28,8					41,4	31,1		50.3-57.2
	University La Laguna	Spain	47,5	37,4	59	53,4	50,4	19,6	50	58,3	11	42,9	36,2	17,9	28,1	30,3		33,3	56,1		50.3-57.2
	Media	Media	54,4	47,2	64,5	69,3	69,3	55,9	62,2	69,9	56,4	59,9	62,8	57,1	56,4	52,4	58,2	66,4			66,6

Source: Adaptation from the impact ranking 2022.

Table 1.
 The impact ranking 2022. Spanish universities SDGs scores.

It is interesting to remark that The Impact Rankings are growingly each year as many more universities seek to demonstrate their commitment to delivering the SDGs; and they allow institutions to demonstrate improvement year-on-year, by introducing new policies or by providing clearer and more open evidence of their progress. Furthermore, we can analyze the level of progress worldwide following this method. In this case, we selected the Spanish universities included in the ranking 2022. Thus, **Table 1** shows the scoring of Spanish universities related to their activities connected to the 17 SDGs in 2022. In general, we can see the score of 37 universities, 6 in the range of 101–200, 12 universities in the range of 201–300, 4 of them in the range of 301–400, 11 universities in the range of 401–600, 3 in the range 601--800, and 3 universities in the range 801–1000 in the global ranking 2022. Moreover, we can highlight that 14 universities include information on the 17 SDGs.

In general, the best performance in Spanish Universities is related to the SDG 3 (64,5), SDG 4 (69,3), SDG 5 (69,3), SDG 7 (62,2), SDG 8 (69,9), SDG 11 (62,8), SDG 16 (66,4), and SDG 17 (66,6). See **Table 2** with a media scoring per SDG. This means that the fundamental focus of these universities is on these global challenges, such as Good Health and Well-Being (SDG 3), Quality Education (SDG 4), Gender Equality (SDG 5), Affordable and Clean Energy (SDG 7), Decent Work and Economic Growth (SDG 8), Sustainable Cities and Communities (SDG 11), Peace, Justice, and Strong Institutions (SDG 16), and Partnerships for the Goals (SDG 17).

In the case of ESIC, the Sustainable and Corporate Social Responsibility (CSR) strategy of this institution is focused on some aspects, such as SDG 4 (80,7), SDG 10 (75,5), SDG 8 (73,1), and SDG5 (70,1). And SDG 16 (45,7) and SDG 17 (49,4).

Description	SDG	Media Spanish Univ 2022
NO POVERTY	SDG 1	54,4
ZERO HUNGER	SDG 2	47,2
GOOD HEALTH AND WELL-BEING	SDG 3	64,5
QUALITY EDUCATION	SDG 4	69,3
GENDER EQUALITY	SDG 5	69,3
CLEAN WATER AND SANITATION	SDG 6	55,9
AFFORDABLE AND CLEAN ENERGY	SDG 7	62,2
DECENT WORK AND ECONOMIC GROWTH	SDG 8	69,9
INDUSTRY INNOVATION AND INFRASTRUCTURE	SDG 9	56,4
REDUCED INEQUALITIES	SDG 10	59,9
SUSTAINABLE CITIES AND COMMUNITIES	SDG 11	62,8
RESPONSIBLE CONSUMPTION AND PRODUCTION	SDG 12	57,1
CLIMATE ACTION	SDG 13	56,4
LIFE BELOW WATER	SDG 14	52,4
LIFE ON LAND	SDG 15	58,2
PEACE, JUSTICE AND STRONG INSTITUTIONS	SDG 16	66,4
PARTNERSHIPS FOR HE GOALS	SDG 17	66,6

Source: Adaptation from the impact ranking 2022. Scores Media Spanish Universities.

Table 2.
Impact ranking 2022.

These SDGs are correlated with quality education in all the programs, employability, and projects with a social impact in collaboration with NGOs. Below is explained a project based on inclusive education through a program with future development for its impact and results. All this is linked with the global purpose of this institution summarized in the idea of Transforming People through education.

4. Case study: relánzaT, an inclusive educational project at ESIC

RelánzaT is an educational project that provides specific training to increase the employability of people at risk of social exclusion (women, young people, over 50s, etc.), who are unemployed and/or have precarious jobs. The RelánzaT project is directly linked to the goals of SDG 4, Quality Education, SDG 8, Decent Work and Economic Growth, and SDG 17, Partnerships to Achieve the Goals. By identifying the needs of each target, a training itinerary is offered with 20-hour courses that provide an ESIC University certification to improve their employability.

The 3 editions developed in the academic year 2021–22 have been carried out with participants from the San Martín de Porres Foundation, located in Madrid, and focus on homeless people with whom we have identified the need to improve communication skills by offering the Communication Skills program. To this end, at ESIC University we designed the program for the 2021–22 academic year together with this Foundation, where three professors created the contents and materials of this training following a university methodology adapted to this target working as volunteers.

In addition, we offered complementary material from ESIC Play, which are free videos in multiple areas of specialized training (<https://play.esic.edu/>). An additional bibliography has also been provided for them to complement their communication skills for employability with some readings.

The program aims to provide communication skills (intrapersonal and interpersonal) to provide autonomy, organizational skills, and good communication. The academic guide also has defined the learning outcomes, such as i) Develop intrapersonal communication skills to face different challenges oriented in the personal and work environment. ii) Obtain interpersonal communication guidelines and techniques oriented to labor insertion. iii) Develop digital competencies for the management in social networks of the professional profile (LinkedIn).

The evaluation system applied is the Continuous Evaluation (CE), a methodology used in ESIC University courses, in which class attendance is mandatory. In this way, students should present the different written evaluation tests or compulsory work of the subjects taught in class, completing the training with the development of a practical part based on writing their own experience.

Therefore, students are evaluated by presenting 3 pieces of evaluation that will add up to 100% of the grade following this scheme:

- I. Written presentation of a case on intrapersonal communication: 33% grade.
- II. Written presentation of a case on interpersonal communication: 33% grade.
- III. Written presentation of a case on communication tools: 33% grade.

In addition, active participation in the classroom is a fundamental part of the experiential nature of the training. Further, in order to pass the program, it will be

necessary to pass each of the evaluation sections (cases and final work). The program consists of the following sections described in the academic guide of the program:

- Part I, intrapersonal communication. Definition of concepts: Self-esteem, Self-management, and Resilience. Keys and examples to have good self-esteem, time management, and being resilient people in the face of changing situations.
- Part II, interpersonal communication. Definition of concepts: Empathy, assertiveness, and conflict management. Keys and examples to increase empathy, assertiveness, and conflict management.
- Part III, communication tools. How to prepare a CV. How to prepare for a job interview. How to manage information in RRSS: creating a LinkedIn profile.

The participants are people of different nationalities who have been selected by the San Martín de Porres Foundation among the Associations with which they work to achieve their fast insertion into the labor market.

Out of the total of participants enrolled in the 1st edition, (November 2021) 8 of them have passed. In the second edition, (February 2022) 11 of the participants passed. In the 3rd edition of RelánzaT, 6 of them have been passed, altogether by delivering all the work required by the teachers and having an adequate attitude, as well as active participation in class (25 participants in 3 editions) Although it should be noted that on different occasions they have had to drop out of the program, both for personal circumstances (health) and family circumstances.

In general, the evaluations of the participants are highly satisfactory, as well as the comments of technicians and managers of the San Martín de Porres Foundation, since they have seen that the training in Communication has provided them with tools to face different situations, both at a personal and professional level. The managers perceived their change of attitude at the end of the program, which materialized in the active search for employment, as well as in their self-confidence to communicate their needs to third parties. For all these reasons, the managers consider this training excellent, since the university methodology followed at ESIC involves learning and effort that has a direct impact on the employability of the participants. As a result of the results obtained in this project, the San Martín de Porres Foundation expresses its interest in continuing with the training in future editions, since Communication continues to be a fundamental area for these groups at risk of social exclusion with whom they work daily. Also, they recognized that the communication program continues to be a relevant area in training for employability, and where they identify profiles for the program with agility and efficiency including people who need a boost to achieve employment quickly. This is the greatest advantage of this program since 60% of the participants of the program have obtained employment after the training (considering the 3 editions carried out in the 2021–2022 course).

The RelánzaT project is directly linked to the goals of SDG 4, Quality Education, SDG 8, Decent Work and Economic Growth, and SDG 17, Partnerships to Achieve the Goals. and its main peculiarity is that it is a project with social impact that has excellent results since people without university studies obtain a

certification from this University by achieving a positive evaluation of the pieces evaluated by the volunteer professors.

As a result, this program has some strong points: it provides training to people without resources; it improves the employability of people at risk of exclusion and allows teachers to offer their knowledge in a supportive way. Moreover, considering that education is a universal right, higher education expands its social impact with a project such as RelánzaT.

5. Discussion and conclusions

Higher education is a key sector to face global challenges and risks [2], where quality education (SDG 4) has the objective in universities of adequately training future leaders in sustainability, from theory and practice [8, 9] as well as providing education to people in exclusion, since education is a universal right, as describes the Article 26 of the Universal Declaration of Human Rights (UN).

To the extent that higher education continues to integrate the SDGs in different institutional areas, its results internally (annual reports) and externally (rankings), we will be able to better understand the contribution of higher education to sustainable development. In this way, both the quantitative data collected by the rankings and the best practices, it shows what is relevant for each university and allow us to know their commitment and relationship with the different stakeholders to work on this common objective.

Together, the areas of education, research, outreach, and management, all together contribute to social transformation [14–16] considering that education is a fundamental pillar in the development of nations and the 2030 Agenda.

Although there are more than 1400 universities around the world that report actions related to SDGs, there is still a long way to go to contribute to a global mentality that is born before studying at the university, therefore, all educational institutions must work for this common goal. In this sense, the mentality of the students will facilitate a sustainable perspective to solve social problems. To increase their impact, universities should put the SDGs at the center of their strategies and culture [3] providing skills and competencies to the students.

While THE publishes the level of progress generated from more than 1400 universities in the world in 2022, this document analyzes Spanish universities and their scores; additionally, a case study is explained on inclusive education at ESIC, as an educational institution with the purpose of transforming people through education. Furthermore, there are many challenges for universities for sustainable development, both from an economic, social, and environmental perspective.

Finally, to accelerate the contribution of universities to the SDGs, indicators are needed and allow educational institutions to be evaluated and compared with others in their environment and other countries. Different rankings, such as THE, show these contributions to be analyzed through different scores. However, it is necessary to know how these activities are raising awareness among all stakeholders in relation to increasing sustainable behaviors. Then, qualitative research can help us to better understand these insights and future directions. Additionally, researchers can explore new methodologies in terms of sustainability, as well as the use of different technologies to understand the contribution of institutional activities to sustainable development.


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Section 2

COVID as a Catalyst
for Change

Perspective Chapter: COVID-19 as a Catalyst for the Acceleration of Change in the Assessment Culture of Caribbean Higher Education Institutions

Stafford Griffith

Abstract

The COVID-19 challenges to Caribbean higher education institutions prompted a transition in the teaching-learning environment from the traditional face-to-face mode to online or distance modes. The purpose of this paper is to highlight the need for change in the assessment practices of Caribbean higher education institutions in the wake of changes in the teaching-learning environments due to COVID-19. By calling attention to the international debate on assessment practices in higher education precipitated by the pandemic, this paper makes the case that the time has come for Caribbean higher education institutions to make a clean break from assessment that is heavily memory dependent and information laden to assessment that is more meaningful and fit for the development and certification of students with competencies that are critical for Caribbean development. Authentic assessment, which makes use of assessment tasks that look more like the actual activities and processes in which persons are engaged in the real world, is posited as the way forward for Caribbean higher education institutions. The paper concludes that the Region's higher education institutions must consider how they may collaborate with providers of technology solutions to develop assessment process that are fit for the preparation of students for the future.

Keywords: COVID-19, Caribbean, higher education, authentic assessment, technology

1. Introduction

The Caribbean (which, in this chapter, refers to the Anglo-Caribbean) is well known for its culture of examinations at all levels of the education system. This is part of its heritage as colonies of the British Empire. Standardised testing approaches are paramount in these examinations. Here, the conditions of administration, including the physical examination setting, the directions to examinees, the test materials and

the time factors are the same for all examinees [1]. In higher education institutions, standardised examinations are generally administered in fixed rooms at fixed times. With such a deeply embedded examinations culture, the countries and educational institutions in the Caribbean were severely affected by COVID-19.

The advent of the COVID-19 pandemic in the first quarter of 2020 created what was undoubtedly the largest disruption of education systems in history [2]. In the vast majority of countries it prompted a transition in the teaching-learning environment from the traditional face to face mode to online or distance modes [3–5]. More than 1.6 billion learners in more than 200 countries were affected globally by this change [6].

According to one United Nations Educational, Scientific and Cultural Organisation (UNESCO) estimate, as many as 60% of the global student population has been affected by closure of educational institutions which offered face-to-face delivery of education [7]. Higher education institutions worldwide shut down their campuses, affecting around 99% of the world's higher education student population [8]. Like the rest of the global community, Caribbean countries had to cope with the impact of COVID-19. Higher education institutions in the Region had to make a rapid transition to remote instruction as part of the measures to minimise potential learning loss or “COVID slide” as one researcher characterised it [9].

2. Precipitation of a discourse on the need for change

Like other educational institutions, higher education institutions had to transform, rapidly, to online delivery of courses [10, 11]. This rapid movement from face-to-face to emergency remote instruction required both faculty and students in higher education institutions to adapt quickly to new technologies. The transformation involved not only their teaching processes but also their assessment processes as they sought to undertake both teaching and assessment online. As Pandya et al. put it:

Faculty at the front line were exposed to drastic pedagogical transitions wherein the course content, delivery methods, delivery tools and assessment strategies had to be remodelled on an urgent basis so that effective remote learning can be facilitated. Higher education institutions.... experienced galactic pedagogical transitions from Pre-Covid... period to Covid... period. ([12], p. 987)

In response to the challenges of COVID-19, and the need to make the shift from face-to-face instruction to online instruction, higher education institutions have responded to the need for a different approach to the assessment of their students. A number of new assessment solutions were implemented. These included the replacement of the timed three-hour face-to-face written examinations with online oral examinations, proctored online examinations and open-book examinations [13], or some combination of these.

University faculty have had to rethink, as well, whether the typical pen-and-paper examinations should be permanently replaced with the more innovative approaches to assessment that were introduced in the wake of COVID-19. In fact, the pandemic, precipitated a debate on assessment practices in the higher education sector, including whether the in-person, fixed time, paper-based assessment was the way to continue into the future [14, 15]. It appears that University faculty adapted quickly to both the

new mode of instruction and assessment and, and according to one writer, faculty who previously fought the introduction of online pedagogy and technology subsequently fought against to teaching in person [9].

As in many other geographical areas, these quick fixes were also utilised in Caribbean higher education institutions. Without doubt, as in other parts of the world, their implementation must have raised the consciousness within higher education sector of the Region about the need to rethink the way students were assessed in a world where technology has become central to the improvement of many facets of education.

The more extensive use of online delivery of courses and programmes in higher education in response to the challenges of COVID-19, creates a heightened awareness of the need to accelerate the pace of much needed reform of instruction and assessment to bring them more in sync with the digital age and the world of artificial intelligence and virtual reality in which students live and for which higher education should be preparing them. The inescapable need for an accelerated pace of assessment reform is properly highlighted by Hughes, the Campus and Secondary School Principal of La Grande Boissière International School of Geneva when he states that few rituals in education were as old-fashioned and out of kilter with the way the world works today as examinations [16].

It is evident that the archaic pen and paper face-to-face assessment process needs to be rapidly reformed. The Working Group of Emerge Education and Jisc specialists put very succinctly the need for this change when they state that:

Our view is that assessment in 2030 has to be relevant for the context of future decades rather than previous decades. Employers will wish to understand attainment in ways other than the ability to write long essays by hand or perform feats of memory recall. ([17], p. 19)

These specialists lamented that traditional assessments fall short of what is required in a number of ways, including the assessment of soft skills, and that it is out of kilter with the behaviour-based assessment that are being used, increasingly, by employers. They also noted that these traditional examinations impose constraints on developing creativity and divergent thinking.

3. The need for authentic assessment

Authentic assessment is important alternative for overcoming the limitations of traditional assessment. It supports a much-needed transformation in the preparation of higher education graduates to satisfy expectations in a 21st century work environment. Griffith [18] points out that, with a few exceptions, the conventional examination essentially provides an assessment of certain relevant knowledge that students are expected to acquire in a particular subject matter and how well they can communicate this in a manner that others can understand. The author noted that many high performing students in the conventional examination often find it difficult to transfer the knowledge they have acquired to the resolution of issues in their real-world environment.

In supporting the need for a sharper focus on authentic assessment in the preparation of graduates, Fergusson et al. [19] point out that:

Unlike traditional assessment theory and methods, authentic assessment plays a critical role in learning rather than being a process or method for simply measuring the level, stage, or competency gained because of the curriculum, i.e. as a result of learning. Assessment of this type is considered “authentic” because it involves the learner in a process of self-development rather than being imposed from “on high” merely to measure, judge and grade what one has (or has not) already learned. ([19], p. 1192)

The Working Group of Emergent Education and Jisc specialists [17] to whom attention was called earlier, posited that there are three requirements for a well-designed assessment system for the future: relevance, adaptability and trustworthiness. Trustworthiness was defined as “solid foundations of academic integrity, security, privacy and fairness” while adaptability was defined as effectiveness in “addressing the needs of a growing and diverse student population, a range of providers and any number of geographies” [p20]. The third requirement is particularly important to the future of examinations, that is, relevance which they defined as:

Enabling universities to go beyond traditional forms of assessment, dictated by practical limitations of analogue exams, and build systems that are relevant to contemporary needs and reflective of the learning process, and make use of innovative assessment methods too impractical to deliver without digital tools. ([17], p. 20)

Authentic assessment processes that may be enhanced with the use of online digital technologies that have been more widely used for instruction and assessment to cope with the challenges of COVID 19, is an important way of satisfying these three requirements. Properly selected and used, online digital technology with the appropriate security features will assure trustworthiness. Authentic assessment tasks and processes, properly constructed and delivered through appropriate online digital technology, will assure adaptability as well as relevance to the world in which students would live and work, and for which higher education should be preparing them.

The University of the West Indies (UWI), rated as the leading University in the Caribbean [20] for example, through its Board for Undergraduate Studies (BUS) and its Board for Graduate Studies and Research (BGSR) developed and implemented a comprehensive adjustment to its traditional examinations in response to the COVID-19 challenges. The University suspended its face-to-face classes in all UWI Campuses on the basis of safety considerations and government pronouncements. It then undertook a comprehensive movement of course delivery to an online environment in its four landed campuses. Its fifth campus, the Open Campus, was already delivering its courses and programmes online and was able to help the other four campuses in this transition. The University then recommended the adoption of alternative assessment methods to final exams which were submitted online. It recommended the setting of authentic assessment tasks that require the application of higher order thinking skills to demonstrate an understanding of a subject [21].

The UWI was not unique in that regard. In response to COVID-19, other Regional Universities adopted, at least in part, similar assessment strategies focussing on authentic assessment submitted online. This is an important foundation on which the higher education institutions in the Caribbean need to build in fashioning assessment processes for the future.

4. Sustaining the authentic assessment precipitated by COVID 19

Authentic assessment focuses on the application of knowledge to real-life situations. It requires the student to perform, or to create or produce something, based on the requirements of a course. These assessment tasks look more like the actual activities and processes in which persons are engaged in the real world. They require students to apply what they know and to demonstrate the competencies needed for success in the real world [18, 22].

COVID-19, has brought to prominence the need to rethink assessment in higher education and to consider more seriously the acceleration of authentic assessment as a primary form of assessment, given its many advantages for the education and certification of students at that level of the education system. An authentic assessment culture will focus students on acquiring and demonstrating competencies that are associated with their employment after the completion of their higher education courses and programmes. It should provide greater motivation to students than the paper and pencil examination which, in too many instances appears contrived, if not irrelevant to the competencies for which students should be trained in their higher education programmes and courses. A culture of authentic assessment will lead to the setting of assessment tasks that challenge students to demonstrate what they can do with what they have learned and not merely to provide heavily information-laden written responses to questions that may not reflect what they can truly do in a work environment after they graduate from their programmes.

A number of findings from a study undertaken by Griffith [23] focussing on the post-secondary Caribbean Advanced Proficiency Examinations (CAPE) of the Caribbean Examinations Council (CXC) are pertinent to higher education institutions. Griffith reported that employers lamented that the courses of study at that level did not prepare students, adequately, with the higher order skills required in the job market. They suggested that students should be required to use higher order skills to create a product, or generate a solution, as a part of their CAPE programme and certification. Employers were of the view that students needed to develop and demonstrate skills that transcend merely the ability to explain: they should be able to apply their knowledge and skills in a work setting. These observations about the programmes offered at the post-secondary level by the Caribbean Examinations Council are worthy of consideration for students of higher education institutions in the Region.

An important objective of assessing students in a higher education course is to determine and report their levels of attainment. The curriculum and the teaching strategies for each course should be geared at allowing students to develop the competencies defined for the course of study. Invariably, these are not limited to cognitive skills. It is expected that student will develop competencies in making use of these skills and in applying them to resolve certain issues and for making useful contributions in various forms of employment.

The typical examination, with its papers to be completed in limited time, is generally not able to assess these competencies. These papers are therefore limited to those competencies that can be assessed in the limited time and in the format which these examinations permit. They are, invariably, unable to utilise the mix of tasks needed to cover, adequately, the total domain to which inferences are to be made from the test scores or grades awarded to students. Under the circumstances, the scores of the students cannot be relied on as valid measures of the extent to which the competencies,

defined for a course, have been accomplished. Therefore, the grades and scores issued to students would have limitations in the inferences that can be made from them about the level of competence students have achieved in the domains defined by the course.

In discussing the importance of alignment between various components of the teaching-learning system, Biggs [24] calls attention, inter alia, to the importance of alignment between course assessment and the intended learning outcomes. Assessment in higher education institutions should be designed in such a way that it measures the outcomes or competencies that students are expected to acquire from taking the course. But, as pointed out in an OECD policy paper that called attention to the limitations of the existing assessment practices at the onset of COVID 19:

While higher education is expected to cultivate students' deep knowledge and skills, current forms of examinations too often measure students' mere capacity to recall memorised course content rather than their ability to apply this knowledge and solve real problems. The misalignment between a course examination and intended learning outcomes impairs the capacity of the examination to certify students' acquisition of these learning outcomes.... If students in higher education are expected to become creative problem-solvers and critical thinkers, then examinations need to measure the actual acquisition of these skills. ([13], p. 10)

The conventional examinations of higher education institutions have certain inherent limitations in achieving the outcomes that are suggested. Fergusson [19] points to two important dimensions of authentic assessment that overcome these limitations. The first is realism which, as the author explains, has to do with the assessment of a situation or a problem that relates to, and is contextualised for, the real world. The second is cognitive challenge that involves the development of higher order cognitive and metacognitive skills through problem solving and the application of knowledge to decision-making.

The programmes and courses of higher education institutions invariably indicate that these are important skills that students are expected to acquire. However, actual assessment often falls short of a focus on these skills that students are expected to develop and demonstrate. The user of the assessment results of students often infers that the test scores or grades are good indicators of the level of attainment of the student in the domain of the programmes and course for which the examination was taken. They therefore treat the examination results as an indication of what students could do if employed in the area in which they have been certified. The validity of such inference is questionable if the examinations from which the scores or grades are derived fail to assess certain expected outcomes of the courses and programmes.

Authentic Assessment provides an appropriate remedy to these limitations of conventional examinations. Properly constructed and administered, it will facilitate an alignment between the intended and the assessed curriculum. It will permit the assessment of those competencies that are critical to the intended curriculum and address the limitations inherent in the conventional pen and paper test, thus allowing valid inferences to be made about student competencies in the course or programme based on the scores or grades derived from their examinations.

It must be acknowledged that some disciplines in higher education institutions in the Caribbean, including the Law Schools and the Schools of Medicine, have been making some use of authentic assessment. However, higher education institutions in the Region need to pursue a rigorous and sustained effort to be embed authentic

assessment as a matter of policy into their courses and programmes. The momentous shift to the use of online assessment due to COVID-19 provides the opportunity to jump start the much needed transformation of assessment in the higher education institutions in the Region and to adopt authentic assessment procedures that benefit from existing and emerging online technologies.

5. Authentic assessment for both formative and summative assessment

In making more extensive use of authentic assessment which has been more widely used as a result of the challenges of COVID 19, Caribbean Higher Education institutions need to consider the value of this assessment approach not only in providing more valid assessment results for users of the certification they provide, but also the benefits of using this type of assessment to improve learning. Pokhrel and Chhetri [6] make the point that “authentic assessments and timely feedback are essential components of learning” [p138]. Higher education institutions must take advantage of the flexibility that authentic assessment provides to be used not only for both summative assessment but also for formative assessment.

Summative assessment provides information that may be used to draw conclusions about how well a student has attained the learning targets. It is concerned with students’ achievement at the end of a period of instruction and becomes part of their record of achievement [18]. On the other hand, formative assessment provides the teacher and student with information that guides learning. It involves the assessment of students’ progress by the teacher and the provision of feedback to help them make progress towards achieving the intended outcomes. The feedback that is provided through formative assessment is also helpful to teachers in understanding what students have learned and the effectiveness of their own teaching. On the basis of this feedback, teachers can plan interventions to guide students to cross learning hurdles and improve in areas where they are weak. In addition, formative assessment and the related feedback assist students in undertaking self-assessment of their progress. Students are able to identify the areas in which they are not doing well and can therefore take steps to assure their self-improvement [18, 25].

Summative Assessment data in higher education institutions may be used for formative purposes. A task may be conceptualised or disaggregated into several related dimensions, each of which may be summatively assessed and the scores from the various dimensions cumulated to produce an overall score for the task. However, the performance data on each dimension may also be used formatively to provide comprehensive feedback to the students on their areas of weakness and how these may be improved to aid performance on subsequent dimensions of the task or on related tasks.

As Caribbean higher education institutions consider ways on improving teaching and assessment following two years of the COVID 19 pandemic, the benefits of authentic assessment used both formatively and summatively should be considered. The contributions and complementarity of these two forms of assessment, using the available digital technologies, should be fully utilised.

Teamwork and collaborative skills on online digital platforms have been cited among the competencies that will become increasingly important in most areas of work over the next few years [17]. Here is another area in which authentic assessment is appropriate for development of relevant skills. It would involve a structured process that requires students to work together on a particular task without the direct

and immediate supervision of the teacher [26]. The online digital technology being increasingly used in the delivery of teaching and assessment since the COVID 19 pandemic is an excellent means of doing so.

Group work enhances the contribution that assessment can make in providing students with authentic learning experience that prepares them to function better in today's real world, digital environment. It can help to develop, among higher education students, certain generic skills sought by employers or professions. These include not only skills of teamwork and collaboration, but also skills of leadership, conflict management, and organisational and time management [27–29]. Group work can therefore be seen as providing authentic experience for students as they engage in, and practice behaviours that are required in the real world of employment to which most will proceed [28].

6. Beyond the COVID 19 emergency measures

The transformation of the assessment process that is proffered in this paper requires Caribbean higher education institutions to go well beyond the emergency use of digital technology pursued over the last two years to cope with the challenges of the COVID 19 pandemic. It requires investment in building a technology capacity that is responsive to the future requirements of instruction and assessment in higher education. The Working Group of Emergent Education and Jisc specialists whose work was previously cited [17] posit that “by 2025, digital technology will make possible assessment that meets five key goals: more authentic, more accessible, appropriately automated, more continuous and more secure” [p7]. Such technology is important to the future of assessment in higher education in the Caribbean Region and in particular to authentic assessment which is essential for “rebooting” assessment in higher education institutions.

The move to more extensive use of authentic assessment that is recommended in this paper will require technology that could facilitate the online invigilation of summative authentic assessments, as well as the online observation and the review of the progress of students, especially for formative authentic assessment or summative authentic continuous assessment. The proper preparation of both teachers and students in higher education institutions in the Caribbean to make effective use of authentic assessment and to optimise the benefits that the available technology provides for the creative design and use of authentic assessment is a paramount consideration for the successful implementation of the recommended assessment transformation.

COVID-19 has already been challenging faculty of higher education institutions in the Region to design online assessments in which stakeholders have confidence. But the experience has also provided an opportunity to rethink assessment in higher education in the Caribbean and the central role of online digital technology in examinations of the future. A golden opportunity is now provided to higher education institutions in the Region to rethink the assessment process so as to (i) help students develop and demonstrate the much-desired higher order thinking, (ii) improve the learning experience and outcomes of higher education and (iii) imbue confidence in the creditability of higher education certification. Not only must the digital technology of higher education institutions in the Region be upgraded, but also the reskilling or upskilling of both teachers and students must be addressed to enable them to make effective use of the technology. These are the sine qua non for the successful

implementation of the type of assessment for the future that is recommended here for higher education institutions in the Caribbean.

Successful implementation of the recommended transformation of assessment practices of higher education institutions in the Caribbean to focus on authentic assessment by building on the technology would rely on a facilitating mindset of teachers and students. This view is supported by the work of Lau, Chua, Teow and Xue [30] made the point that student buy-in is important for the successful use of new technologies. They noted that during COVID-19 implementation of online assessments, it was impossible to change mindsets of university students quickly about digital technology for testing. They surmised that this was due to the fact that through their high school years, these students had encountered mainly written examinations and tests as an indicator of their academic achievements. A United Nations policy brief on education during COVID-19 and beyond [2] also raised concerns about how much confidence could be placed on educators themselves in pursuing the task of assessing their students in certain practical or professional domains in the future. Clearly, these are issues that would need to be addressed for the recommended transformation of assessment in higher education institutions in the Caribbean.

Without clear targets and schedules for transformation, the required change will be slow in coming to Caribbean higher education institutions. These institutions and their host countries and governments need to be sensitised to the need to make the changes that are critically necessary to improve the process of assessment with the aid of online digital technology. In this regard, the experience of the rapid and radical emergency changes that already had to be made in the wake of COVID 19 by using online digital technology should provide the impetus for rethinking assessment for the future in Regional higher education institutions.

7. Conclusion

The time has come for higher education institutions in the Caribbean Region to make a clean break from the assessment that is so heavily memory dependent and information laden to assessment that is more meaningful and fit for the development and certification of students with competencies that are critical for Regional development. If the Region is to avoid being left behind in the unfolding examinations revolution, it must act with alacrity to build on the forced advances in assessment that have already been made in responding to the challenges of COVID-19. The Region's higher education institutions must consider how they may collaborate with providers of technology solutions to begin the task of accelerated development of an assessment processes that is fit for the preparation of students for the future.


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Chapter 6

Barriers and Enablers in the Education and Psychosocial Wellbeing of University Students amid the COVID-19: The Case of Eastern Ethiopia, Haramaya University in Focus

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Abstract

The education system is one of the sectors that have been severely affected by COVID-19. As a result, a new way of teaching-learning was initiated by world's educational institutions to try to educate their students through online learning platforms. Hence, this study aims at exploring barriers and enablers of online education as well as the psychosocial well-being of university students during COVID-19 in eastern Ethiopia with a particular focus on Haramaya University. A concurrent mixed method design was employed. A total of 384 participants were selected using a stratified random sampling technique. Questionnaires, key informant interviews, and document analyses were used to collect data. Quantitative data were analyzed using descriptive statistics and qualitative data were analyzed thematically, then the analyzed data were integrated to get a holistic picture of the study result. The study revealed that university students experienced high levels of barriers, low levels of enablers, and severe levels of psychosocial problems while attending their education online during the COVID-19 pandemic. Hence, proactive measures taken for identifying and removing barriers, enhancing enablers, and creating a support system that shields the psychosocial well-being of university students are recommended as appropriate intervention strategies to adapt the online education modality in universities during the COVID-19 pandemic.

Keywords: barriers, COVID-19, enablers, online education, psychosocial well-being, university students

1. Introduction

1.1 Background of the study

The novel coronavirus disease (COVID-19) was originated at the end of December 2019 in Wuhan, Hubei Province of China initially as an epidemic, but spread rapidly in the world within few days. The World Health Organization (WHO) designated it a pandemic in March 2020 and issued safety measures and preventions to be taken to deal with the precarious disease [1]. To respond to COVID-19, many countries have taken diverse preventive measures, including restrictions on movements, social distancing, self-isolation, or quarantine; and asking people to work at home. Considering growing concern about the pandemic, the whole world abruptly gets into lockdown, which impelled the widespread closure of schools, HEIs, and other educational institutions in many countries [2].

In Ethiopia, the first COVID-19 case was confirmed and reported on 13 March 2020 [3] and a 5-month state of emergency was declared on 8 April 2020 (Proclamation no. 3/2020) to safeguard the citizens and curb the spread of the virus [4]. As part of the national response to the rising concern about the COVID-19 pandemic, an inter-ministerial task force chaired by the Prime Minister has been established and, effective 16 March 2020 decided to take a variety of policy actions and precautionary measures such as airport surveillance and suspension of flights, travel restrictions, closure of international borders, flexible working arrangements, closing schools and universities, suspending sporting and religious gatherings [5]. The closure of all types of educational institutions, in turn, resulted in sending more than one million students to their homes [6]. As a result, over 26 million students from over 37,000 primary schools and over 500,000 primary school teachers across Ethiopia have been affected by the closures. The temporary closure of the HEIs was based on the principle to safeguard public health from the pandemic by avoiding large social gatherings. It is a common practice among educational institutions in general and HEIs, in particular, to close their doors when confinement or quarantine-related legislations are enacted [2].

In an effort to reduce the spread of the COVID-19 virus among student population, all the universities across the country canceled all campus activities such as face-to-face class delivery. Students and teachers were banned from meeting and only allowed to connect online or by other means that do not contravene social distancing measures. Universities have gradually transitioned to offering courses and programs in an online delivery mode than face-to-face modality.

Universities are situated at different extremes in terms of their capacities related to technology, instructional resources, and, above all, experienced teachers and those that do not. At one of the extremes are private or public universities with huge sizes, outstanding international exposure, and high reputation in virtual education.

At one extreme are the universities, public or private, of greater size and international exposure that already have a remarkable tradition of virtual education platforms generally forged into the system. In such universities, online education is used for offering courses for undergraduate students as a didactic supplement to the face-to-face modality where they can find programs, readings, exercises, and, of course, communication mechanisms among students and teachers. Yet, some of these universities that are well familiar with the intensive use of technology in education have realized the need to prepare students and teachers for the transition to online education with all that it requires in terms of technology and skills for digital teaching and learning.

Any major epidemic outbreak will have negative effects on individuals and society. Along with its high contagion and fatality rates, COVID-19 has caused a universal psychological impact by causing mass hysteria, economic burden, and financial losses. Studies have shown that public health emergencies can have many psychological effects on college students, which can be expressed as anxiety, fear, and worry, among others [7]. Mass fear of COVID-19 termed “corona-phobia,” has generated a plethora of psychiatric manifestations across the different strata of society. The disease itself accompanied by forced quarantine to combat the virus applied by nationwide lockdowns can produce acute panic, anxiety, fear of transmitting infection, feeling of incompatibility, depression, increased substance dependence, and post-traumatic stress disorder (PTSD) in the long run. These have been fueled by “coronavirus infodemic” which refers to breeding fright and panic by laying out unchecked mind-boggling rumors, flamboyant news propaganda, and sensationalism [8].

University students were at an important developmental age for their values and judges and could be easily affected by the opinions and views from social media; therefore, their emotions were also vulnerable. A survey conducted by the UNESCO [2] on psychological crisis of higher education in the USA shows that 75% of them experienced anxiety and depression during COVID-19. A study carried out between March 17 and 19, 2020 to examine the impacts of COVID-19 in 172 USA HEIs found the social-emotional health and well-being of students, teachers, and non-teachers as an immediate concern for the institutions. Nevertheless, measures targeted to the specific area were limited to only two states out of 10. Other areas of concern include student access to the requisite technologies and platforms (76%) and the institutions’ own real capacity, in technological and pedagogical terms, to offer quality online education (75%).

Therefore, the current study dealt with barriers and enablers in the education and psychosocial well-being of university students amid the COVID-19 pandemic in eastern Ethiopia, with a particular focus on Haramaya University.

1.2 Statement of the problem

The COVID-19 outbreak has caused massive disruptions across all human spheres. UNESCO [2] reported that as of the 6th of April 2020, 1,576,021,818 billion students were affected across 188 countries at all education levels. In Ethiopia, like in many parts of the world, the temporary cessation of face-to-face activities has been a huge disruptor of the functions of higher education institutions, mainly the provision of instruction in the face-to-face modality. With the gradual decline of the original fright and panic instigated by the pandemic, higher education institutions in the country have devised alternative strategies to maintain uninterrupted learning within the context of disrupted classes. In this regard, one of the notable measures taken by the higher education institutions in Ethiopia with the direction from the MoSHE was the continuation of education through virtual instruction [3].

Despite the directives given by the ministry of education, however, there are a lot of challenges to offer online education to students considering the actual context of Ethiopia. One of the challenges in relation to this is that online classes are new for the large majority of students. Other challenges are lack of access to laptops and internet facilities at home, poor internet connection, and excess internet cost to follow their studies during a serious pandemic situation [6]. Still, another challenge is that many teachers are unprepared to teach online and cannot ensure student engagement due to deficits in ICT knowledge and skills. The transition to online mode of educational delivery poses

questions for academic staff about their capacity to deal with the existing technology, in addition to overcoming constraints related to internet accessibility and necessary equipment. Besides these, the transition from face-to-face teaching to online delivery has a serious impact on assessment and evaluation. Applying assessments online on those courses designed for face-to-face learning is a challenging task. Owing to the challenges encountered both from the students' and instructors' side, the quality and feasibility of online education is a critical issue of concern that needs proper attention.

In addition to the problems related to online teaching, the worldwide rapid increase of infected cases has created a sense of uncertainty and anxiety about what is going to happen. Earlier research findings [9–13] indicated that negative psychological effects may result from infectious diseases of uncertainty recently observed around the globe as the 2010 and 2009 H1N1 influenza pandemic, the Ebola virus, equine influenza, and the Middle East respiratory syndrome. Apart from other emotional reactions, feelings of anxiety, stressfulness, and distress are common under situations of uncertainty like COVID-19. Dubey et al. [8] elucidated that mental well-being had been heavily affected by this kind of global pandemic. Students have had to rearrange their daily lives to adjust to a situation of confinement. University campus life and learning have a critical role in the psychological development of students and home confinement-related issues were hypothesized to have a psychological impact on university students. Prolonged periods of university closure and movement restrictions may lead to emotional unrest and anxiety. It has also caused a tremendous level of stress among the university fraternity, inclusive of students. This stress may lead to unfavorable effects on the learning and psychological well-being of students.

Earlier studies have documented the negative influence of pandemics on students' psychological well-being [14] which has led to acute depression and anxiety [15]. For example, a survey conducted during the last week of March among higher education students in the United States shows that 75% have said that they have experienced anxiety and depression because of the crisis [16]. Similarly, Cao et al. [17] investigated the psychological impact of COVID-19 pandemic on university students in China. The finding showed that out of the 7143 students who participated in the study 0.9%, 2.7%, and 21.3% respectively had mild, moderate, and severe anxiety. Likewise, the study carried out to examine the psychological effect of COVID-19 on 1210 students taken from 194 cities in China, indicated that 53.8% of the respondents had psychological problems ranging from severe to moderate, with relatively higher impact effect on the female students (2020).

Despite all the problems and concerns revolving surrounding the COVID-19 pandemic, there is a paucity of research on the barriers and enablers that respectively inhibit or facilitate the online education modality as well as the impact of COVID-19 on the psychosocial well-being of students in HEIs of Ethiopia in general and in Haramaya University in particular. In addition, questions arise about whether the university is taking proactive measures to facilitate online learning and support the psychosocial well-being of students.

Hence, this study was designed to examine enabling factors that facilitated online education and challenges encountered by university students and their teachers who offer them online courses to put into practice the direction set by the ministry of education and their respective universities. By doing so, the study sought to examine major barriers that impede university students and their university instructors, respectively, to deliver and attending courses through online mode and disseminate best practices in this regard. Given the fact that the higher education institutions in

eastern Ethiopia have entered into a completely new, previously unexplored frontier of educational delivery under the pressure of COVID-19, and that they did not have a clear idea of how long the pandemic will last and the level of impact it will have on the system and its prime actors (i.e., students, teachers, and the university management) the researchers were initiated to conduct the study in this area.

1.3 Research questions

The study was guided by the following basic research questions:

1. What was the extent of postgraduate students' perceived experience regarding barriers or enablers in attending online education during COVID-19 (the nature of online teaching-learning system, technological issues, process of academic issues, and domestic/contextual issues)?
2. What was the extent of psychosocial wellbeing among postgraduate students during COVID-19?

1.4 Purpose of the study

1.4.1 General objective

The COVID-19 outbreak and the subsequent closure of HEIs resulted in a shift from the face-to-face teaching-learning modality to the online modality in the postgraduate study programs offered at Haramaya University. To this end, the purpose of the study was to assess the perception of postgraduate students towards online education and the barriers and enablers in attending their education as well as problems of psychosocial well-being among students during COVID-19.

1.4.2 Specific objectives

1. To describe the barriers and enablers of online education which are experienced by postgraduate students during the COVID-19 pandemic.
2. To indicate the extent of psychosocial well-being problems, which are experienced by postgraduate students during the COVID-19 pandemic.

1.5 Scope of the study

The target population of the study was regular postgraduate students. Geographically, the study was delimited to public higher education institutions (HEIs) found in eastern Ethiopia with a particular focus on Haramaya University. Conceptually, the study was delimited to assess barriers and enablers of online education and assess problems of psychosocial wellbeing among postgraduate students during COVID-19. The study focuses nature of online teaching-learning system, technological issues, process of academic issues, domestic/contextual issues, and psychosocial wellbeing as a measured variable, as well as living area, gender, and nature of program as demographic characteristics of participants as independent variables. The study was delimited to use a concurrent mixed research method. The study excluded regular postgraduate students who completed their coursework.

1.6 Limitations of the study

While doing this research, the study had the following constraints:

- There were some incomplete responses in the collected questionnaire which resulted in the exclusion of those participants' perceptions and views during the data analysis process.
- It is well known that the issue of online education is so broad with different dimensions. Thus, the issues and concerns surrounding the topic could not be fully addressed within the limited sample size and geographical coverage of the study.
- During the interview, the researchers kept notes of participants' views, feelings, cues, and expressions related to their lived experiences on online learning. Such notes were important while the researchers transcribed the audio-recorded data. However, researchers found faced difficulty depicting fully, some of the intonations, emphasis, and accents in the form of transcript.

1.7 Definition of basic terms

- Barriers: refer to hindrances/challenges/obstacles faced by students and instructors during online education during COVID-19.
- Enablers: refer to conditions that facilitate online education during COVID-19.

2. Review of related literature

2.1 Introduction

In this section, major concepts and constructs in the study are defined and clarified. Particularly, the terms and concepts of coronavirus disease, online learning, and psychosocial well-being are defined. The review further examines and presents previous empirical studies conducted in the area at local and international levels.

2.2 The coronavirus disease (COVID-19)

According to the WHO [18], the coronavirus disease (COVID-19) is termed an infectious disease caused by a newly discovered coronavirus. Fever, dry cough, fatigue pneumonia, difficulty in breathing, and lung infection are some of the major symptoms of the virus [19]. On January 7, 2020, the virus was labeled as 2019-nCov and recognized as the third notable outbreak in recent times after the 2012 Middle East respiratory syndrome (MERS) and the 2003 severe acute respiratory syndrome (SARS). Patients diagnosed to have the virus affecting their lower respiratory tract with pneumonia were initially identified in December 2019 in Wuhan region, China. The spread of the epidemic was so fast that by the next month on January 3, 2020, the WHO announced it as a public emergency of international concern. Again, on the 11th of March 2020, the WHO officially declared that COVID -19 can be considered

as a pandemic owing to the growing number of cases reported and the number of countries affected [18].

Ethiopia is one of the affected countries for which the first confirmed COVID-19 case was identified on March 13, 2020. The number of cases in the country has been increasing alarmingly since the first case was reported. Three days after the first case was reported, the government of Ethiopia has taken different policy measures, such as the banning of all public gatherings and the closure of HEIs and schools. In addition, the government encouraged physical distancing, placed travelers from abroad under a 14-day mandatory quarantine, closed hotel bars until further notice, and banned travel through land borders. The measures taken by the federal government cascaded to the regional governments and, eventually, they imposed restrictions on public transportation and other vehicle movements between cities and rural areas. On the 8th of April 2020, a state of emergency was declared at the national level.

2.3 Online learning during COVID-19

Online learning is referred to as learning experiences in synchronous or asynchronous settings using devices of different kinds including mobile phones and laptops with internet access. According to Singh and Thurman [20], these environments allow the students to be anywhere geographically and yet enable them to interact with each other and their instructors [21]. Based on the modes of delivery, online learning can be classified into three typologies as synchronous, asynchronous, and open learning. Unlike the asynchronous learning, synchronous learning is organized in such a way that the courses are scheduled at specific times and in live virtual classroom settings. This enables the students to benefit from real-time interactions, hence getting instant messaging and feedback when needed [22]. Open learning involves, among other things, the preparation and release of appropriate teaching materials and the usage of teaching methodologies that encourage students to construct and contribute to knowledge, regulate the pathways, and rate of their own learning.

There are several studies (e.g., [23, 24]), which show that online teaching can produce better results at a lower cost. Online teaching has the potential to reduce the cost of education [25] which is a significant factor preventing more people from studying at tertiary level. In line with this, Harasim [26], points out that many benefits are associated with moving to teaching and learning to the internet and predicts a large-scale network of education being created from the concept of e-learning. Previous studies, too, (e.g., [26–28]) show several advantages of online learning and provide a good number of reasons as to why students are likely to learn effectively through online studies. According to these studies, students have more control over their studies and have more opportunities at their disposal for reflection. The studies further revealed that successful online students tend to be organized and self-starters who can accomplish their work without close supervision. Learning became more accessible, participatory, and relevant to the context with advances in ICT in education and the development of digital learning resources such as games, e-books, e-notes, models, quizzes, graphics, animations, simulations, online video micro-courses, Small Private Online Courses (SPOCs) and Massive Open Online Courses (MOOCs) [29].

It is quite understandable that online learning could provide a great opportunity for the HEIs in Ethiopia, as it might guide them to upgrade their technical infrastructure and make online teaching and learning a core aspect of their operation.

For almost if online teaching has been possible there has been a perception on the part of students, administrators, and some teachers that there are some barriers to the adoption of online teaching at the tertiary level of education [21]. Studies aimed at identifying the causes for resistance against online teaching have been conducted beginning as early as the 1990s [30, 31]. These studies have shown that teachers encountered explicit or implicit barriers in adopting online teaching. In relation to this, a comprehensive summary of the review of literature on barriers and enablers to online learning was made by Maguire [32] and presented under the two overarching themes: intrinsic and institutional barriers, and intrinsic, extrinsic, and institutional motivators.

Other studies have shown that offering online education to students is demanding and requires overcoming a lot of challenges. For instance, Bao [33] and Filius et al. [34] argue that going entirely online requires significant planning and investments from all sectors. The online infrastructure in many universities does not permit the utilization of distance learning owing to malfunctioning of the university websites and library websites, professors' skills deficit in manipulating electronic devices to the required level, limited provisions in research facilities for remote work, etc. When the issue is seen from the human dimension as well, switching to the online curriculum delivery mode is not an easy task due to lack of readiness from most of the academic staff not due to other reasons but an absence of the skills needed and previous related training. Despite high level of interest in distance tertiary education in the last decade, the number of resources available for conducting online learning remains inadequate in many countries. Guidance and counseling for students work less well or are not available at all in the distance mode for academic guidance, career guidance, psychological counseling, and professional orientation for school graduates.

Additional challenges include poor internet connectivity, high internet cost, and constraints of technological devices and infrastructure which seriously impede the involvement of students in online learning over and above their likely lack of alertness to follow their studies in a serious pandemic situation. Such persistence of lack of a developed learning system has compelled institutions to use social media platforms for educational activities. Failures of such kinds exhibited in higher education institutions in addressing the challenges that the students experienced created unhappiness and disagreement with the institutions [6]. Distance learning due to the pandemic is already having major implications for equity. These implications could be academic, social, financial, and physical taking students at-risk as an example. Learners who have no access to technology as well as those with learning disabilities and challenges are likely to be left behind resulting in exacerbating the existing disparity in access and retention. Likewise, as families are impacted by the economic effect of closed economies, students may be needed to provide support to their families, putting their studies in jeopardy. Without concerted efforts in terms of institutional guidance, counseling, and support, the most vulnerable students are likely to fall out of tertiary education.

As a leading experience worldwide, China is the first country to provide massive online education to hundreds of millions of students nationwide during the epidemic prevention and control period. During the COVID-19 outbreak, the Chinese Ministry of Education launched the “disrupted classes, undisrupted learning” initiative, providing flexible online learning to over 270 million students from their homes [29]. According to the Chinese Ministry of Education [29] in the 2018 academic year, there were about 518,800 schools at all levels, with about 16,728,500 full-time teachers and 276 million students in China.

2.4 Psychosocial wellbeing

The psychological tradition operationalizes wellbeing as the subjective evaluation of life via satisfaction and affect (e.g., [35–40]) or personal functioning [41]. According to this view, emotional well-being is an excess of positive over negative feelings; personal psychological functioning is the presence of more positive than negatively perceived self-attributes, such as personal growth. Research in well-being has been classified into two major streams; namely, the hedonic and eudaimonic approaches. In the hedonic approach, well-being is defined and conceptualized in terms of happiness in general and the presence of pleasure and absence of pain in particular, which makes it belong to the stream of research on subjective well-being [36, 37]. On the other hand, in the eudaimonic approach, well-being is associated with a human potential that, when realized, results in a person's optimal functioning in life [37, 42] which is reflected in the stream of research on psychological [41] and social [43] well-being.

In the current literature, there seems to be a consensus that well-being is a multidimensional construct composed of three dimensions: subjective, social, and psychological, which add up to overall well-being. In turn, each of these dimensions is multi-dimensional. This is analogous to the three dimensions of health which incorporate psychological, social, and physical well-being according to the World Health Organization [44]. In contemporary literature, psychosocial well-being is defined in diverse ways, and it refers among other things to the physical, mental, emotional, social, spiritual, economic, and cultural health of the person. The consensus is that a psychosocial model should exhibit interconnectedness among the different aspects of overall well-being [45].

According to Diener et al. [46], subjective well-being refers to a person's cognitive and affective assessment of his or her life. Although there is no consensus on the number of dimensions that comprise subjective well-being, two main components are generally evident: a cognitive (satisfaction) and an affective (pleasant effect and low levels of unpleasant effect) component [35–37].

A combination of positive circumstances in all spectrums of life, such as contentment, both physically and spiritually; plus, optimal function is recognized as psychological well-being [47]. In addition, psychological well-being refers to how individuals control their life and activities [48]. Psychological well-being does not just make us feel good all the time but also involves negative emotions such as frustration, failure, and grief which are normal things in life [47]. Positive emotional and social support plays a fundamental role in building psychological well-being [49]. Therefore, managing negative emotions is important for long-term well-being. An individual who has high psychological well-being will lead a happy life and will be satisfied with their professional and personal life, capable and well-supported. Ryff [41] proposed the concept of psychological well-being as a multidimensional construct that consists of six distinct facets, which include self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy.

Social well-being is the appraisal of one's circumstances and functioning in society [43]. Keyes [43] proposed and described social well-being to have multiple dimensions including social integration, social acceptance, social contribution, and social coherence to mention a few. Social integration refers to the assessment of the quality of one's relationship with the community and society at large. A healthy person feels that he/she is a part of society. Therefore, integration is the measure with which the person evaluates his/her relationship with other individuals and

his/her belongingness to society. Social acceptance is the social counterpart of personal acceptance: people who have a good feeling about his/her personality and recognize both the good and the bad sides of their lives symbolize good mental health [41, 50]. Consequently, social acceptance of others might be considered as the social equivalent of self-acceptance.

Social contribution is one's assessment of self in terms of social value. It includes the belief that one is a vital member of society, with the value of giving to the world. Social responsibility is the designation of personal obligations that ostensibly contribute to society. Social contribution reflects whether, and to what degree, people feel that whatever they do in the world is valued by society and contributes to the common good. Social coherence refers to the perception of the individual towards the operation, organization, and quality of the social world and it also involves a concern for knowing about the world. A healthy person not only cares about the kind of world in which he/she lives but also feels that he/she can understand what is happening around. Such individuals do not deceive themselves that they live in a perfect world; they have maintained or promoted the desire to make sense of life.

2.5 Measurement of psychosocial wellbeing

In measuring psychosocial well-being, researchers either focus on clinical symptomatology such as depression, or use global measures of life satisfaction and happiness [43]. The self is both a public process and a private product [51, 52] implying social and subjective well-being, respectively. Subjective well-being is most measured by asking people a single question, such as “how satisfied are you with your life as a whole?” In contrast to single-question measures, multi-item measures of subjective well-being were developed with the purpose of achieving greater reliability. Diener's [37] and Seligman's [53] models of subjective well-being are such multi-item measures of subjective well-being [37, 54, 55]. Multi-item measures have also been developed for psychological and social well-being by Ryff [41] and Keyes [43] respectively. These scales include different number of items measured on a 5-point Likert scale (from 1 = strongly disagree up to 5 = strongly agree).

2.6 Impact of COVID-19 on students' psychosocial well-being

COVID-19 is creating a psycho-emotional chaotic situation as countries have been reporting a sharp rise in mental health problems, including anxiety, depression, stress, sleep disorder as well as fear, among its citizens [56–60]. Depression and anxiety are both common mental disorders with a prevalence of 10–44% in developing countries and depression is the fourth leading cause of morbidity [61]. Brooks et al. [62] reviewed and reported quarantine could bring “post-traumatic stress symptoms, confusion, and anger. Stressors included longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma.” A Canadian study focusing on the effects of quarantine after the severe acute respiratory syndrome (SARS) epidemic found an association between a longer duration of quarantine with a high prevalence of anxiety and depression among people [63]. Some researchers also suggested long-lasting effects. Some HEIs have recognized the isolation that follows confinement and organized support mechanisms for addressing psychological and socio-emotional problems experienced by the university community, particularly the students. Although such measures were not common to

all universities when it has been taken it has usually capitalized on the resources of the psychology faculties or student welfare services. For instance, at the Franz Tamayo University in Bolivia 13 psychologists came on board to serve the university community, especially in situations of isolation [16].

Psychological distress has been considered a major and critical issue occurred among university students globally [64]. Five out of the top six health-related problems are psychology based on a study conducted in the United States [48, 64]. University students are at high risk for depression and anxiety symptoms ([65]; American College Health [66]) and are exposed to multiple stressors unique to this developmental period [67, 68].

Researchers in China observed that greater exposure to “misinformation” through social media are more likely to contribute to the development of anxiety, depression, and other mental health problems among its population of different socioeconomic background [17, 33, 69, 70]. Studies before COVID-19 also suggested an inverse relationship between media exposure and mental health [71, 72]. On the contrary, a study in South Korea during the middle east respiratory syndrome (MERS) reported a positive relationship between risk perception and media exposure [73]. Infodemic can increase the burden of psychological stress and anxiety on a large scale. People who use social networks excessively are prone to adverse effects related to infodemic. Studies suggest that social media, electronic media, and print media should avoid spreading hateful and stressful news.

Lower socioeconomic status (SES) has been linked consistently to diminished physical and mental health [74], partially because life at lower socio-economic levels appears to impair health-promoting self-conceptions [75].

3. Research design and method

3.1 Study area

The study was conducted in eastern Ethiopia with a focus on Haramaya University. Haramaya University is one of the government higher learning institutions (HLIs) located in the eastern part of Ethiopia at about 510 km from the capital, Addis Ababa. It was established in 1954 as an agricultural college but developed into a full-fledged university with diverse study programs in 1985. It is functioning on two campus premises, one of which is located close to Haramaya town and the other one located in Harar city. This university comprises nine colleges, one Institute, one Academy, and one Postgraduate Program Directorate under which about 34,207 students (25,984 undergraduate and 4367 postgraduate) are undertaking their studies. Except for the College of Health and Medical Sciences which is in Harar city, the remaining academic units are located on the main campus. The university launched its graduate study programs in 1979/80 academic year (**Table 1**) [76].

3.2 Research design

The study employed mixed research design, particularly concurrent mixed research design. This research design involves collecting and analyzing qualitative and quantitative data simultaneously. Creswell [77] stated this kind of research design provides a more complete understanding of a research problem than either approach alone. Besides, it has the advantage of minimizing the limitations of both approaches.

Strongly Disagree	Disagree	True to Some Extent	Agree	Strongly Disagree
1–1.80	1.81–2.60	2.61–3.40	3.41–4.20	4.21–5.00

Table 1.
Average score interpretation for a five-point Likert scale.

Among the two forms of mixed methods designs (sequential and concurrent) identified by Creswell [78], the concurrent mixed methods design was employed in this study where two independent strands of quantitative and qualitative data were collected separately in a single phase and merged towards the end by bringing the separate results together in the simultaneous analysis and interpretation parts. As Creswell and Plano-Clark [79] and Creswell [77] indicated that this method helps to have a general picture of the subject under consideration at a time.

3.3 Sources of data

For the study, both primary and secondary sources of data were consulted as thoroughly as possible. To this end, primary data was collected from a sample of post-graduate students (MA/MSc and PhD) of Haramaya University, and instructors (as key informants) who had active involvement in the online learning-teaching process. Besides, secondary data was collected from published and unpublished documents (both international and local), research articles, and different reports by various stakeholders.

3.4 Population, sample size, and sampling techniques

The population considered for this study was postgraduate students at Haramaya University. A stratified random sampling technique was employed to select the participants by considering their heterogeneity in terms of program nature, level of study (MA/MSc and PhD), place of residence (rural and urban), and sex category. As it was a challenge to get the exact number of student population under consideration, the researchers opted to use a representative sample size formula developed by Cochran [80] for proportions. The formula is described as $n = Z^2 pq/e^2$ where n refers to the sample size, z stands for the selected critical value of desired confidence level and the z -value is found in a Z table. e is the desired level of precision (i.e. the margin of error), p is the (estimated) proportion of the population which has the attribute in question, q is $1 - p$.

Hence, assuming a maximum variability of 50% ($p = 0.5$) and considering 95% confidence level with $\neq 5\%$ precision, the sample size was calculated as follows: $p = 0.5$ and hence $q = 1 - 0.5 = 0.5$; $e = 0.05$; $z = 1.96$ $n = ((1.96)^2 (0.5)(0.5)) / (0.05)^2 = 384.16 = 384$. After the total sample size was determined, it was proportionally shared by colleges, institutes, and academy’s population of postgraduate students. Therefore, the researchers had a total of 384 participants from the institute, academy, and all the colleges to fill out the self-administered questionnaire. Of the total 384 participants, 318 properly responded to the questionnaires. Hence, the response rate was 82.8%, which is considered adequate and excellent. Besides, 11 key informants who had a direct link with and active engagement in online learning-teaching were purposively selected and interviewed. This helped to triangulate the quantitative data obtained through the questionnaire.

3.5 Methods of data collection

Data were collected through questionnaires, key informant interviews, and document review. The questionnaire and interview guides were prepared in English.

3.5.1 Questionnaire

A Likert-scale type questionnaire was used for collecting quantitative data. The questionnaire comprises three major sections and a total of eighty-six (86) items. The first section aimed at collecting data about the study participants' socio-demographic characteristics and consists of eight (8) terms. The second section aimed at assessing the barriers and enablers experienced by the students while attending online education under COVID-19 and consists of forty (40) items categorized into four (4) components; namely, nature of online teaching-learning system (7 items), technology-related issues (6 items), teaching-learning process (15 items), and micro-level context-related issues (12 items). These five-point Likert scales ranged from strongly disagree to strongly agree which are represented as 1 = strongly disagree; 2 = somewhat disagree; 3 = neither agree nor disagree; 4 = somewhat agree; and 5 = strongly agree. For the interpretations of items, their average scores were used.

The forty (40) items in the second section related to barriers and enablers in attending online learning under COVID-19 were developed by the researchers based on an extensive review of literature. To this end, previous studies conducted on the topic of online education in general and under COVID-19 were reviewed and major issues to be addressed were identified. Accordingly, the items were developed in such a way that each of them addresses different aspects of online education. The third section aimed at assessing the psychosocial well-being of the students and consists of 38 items classified into four components; namely, risk perception (12 items), depression, anxiety, and stress (21 items) which was adopted from public domain literature indicated in [81], subjective or social wellbeing associated with COVID-19 (5 items) which was adapted from public domain literature cited in [82] with some modification.

3.5.2 Key informant interview

Key informant interview was conducted using interview guide questions prepared to meet the objectives of the study. The questions were prepared with the aim to strengthen the quantitative data collected through questionnaire. The questions are mainly related to enablers/best practices observed from the online education system during COVID-19, barriers encountered during online education, and psychosocial problems encountered by the students under COVID-19. The items were prepared in English.

3.6 Validity and reliability of instruments

Data collectors were given training on the tools and overall ethics and skills of data collection for two days. Instruments of data collection were validated, standardized, and contextualized by the experts (researchers).

Pilot study was made on 5% sample of non-participants of the study and the necessary revisions to the instruments of data collection were made accordingly.

The filled-out questionnaires were checked thoroughly on a daily basis by the supervisors for their completeness.

3.7 Methods of data analysis

The study employed both quantitative and qualitative methods of data analysis in a parallel way. Accordingly, the quantitative data were organized using SPSS software version 20 and analyzed by employing descriptive statistics. Besides, the qualitative data was sorted out, transcribed, coded, and analyzed thematically by integrating it with the quantitative data. This helped to have a relatively holistic picture of the subject under consideration from vantage points.

3.8 Ethical considerations

The proposal for conducting the study was approved and a letter of cooperation was obtained from Haramaya University Research Office after submitting the proposal to the office. Training was provided for data collectors on how to secure confidentiality and privacy of the study participants by using the consent form attached to each questionnaire. Accordingly, anonymity was assured by excluding respondents' names during the data collection process. In addition, informed consent was obtained from the study participants after clearly explaining to them the purpose, procedure, duration, possible risks, and benefits of the study. Participants who were not willing to engage in the study and those who wanted to abstain from filling out the questionnaire at any time were allowed to do so.

In order to reduce the risk of transmission of COVID-19 during data collection, care was taken using hand sanitizer, facemask, and keeping an appropriate physical distance. To make sure that these ethical standards were met, the researchers had close supervision of the data collectors throughout the data collection period.

4. Results and discussions

4.1 Participants' demographic characteristics

4.1.1 Distribution of the study participants by living area

As shown in **Table 2**, the majority of study participants 250 (78.6%) live in urban areas while the rest 68 (21.4%) live in rural areas during the closure of the university due to the COVID -19 pandemic.

		Frequency	%	Cumulative %
Valid	Rural	68	21.40	21.40
	Urban	250	78.60	100.
	Total	318	100.	

Table 2.
Current living area.

4.1.2 Distribution of the study participants by gender

The study involved both males and females. **Table 3** displays the distribution of the study participants in terms of sex.

Table 3 shows that out of the 318 study participants, the males account for 241 (75.80%) while the females account for 77 (24.20%).

4.1.3 Distribution of the study participants by age

The study participants were drawn from different age categories. **Table 4** depicts a summary of the study participants in a 10-year age range category.

As indicated in **Table 4**, a large proportion of the study participants 260 (80.8%) belong to the age range of 25–34 years, followed successively by those who belong to the age range of 35–44 years 38 (11.9%), and those in the age category of under 24 years of age 14 (4.4%).

4.1.4 Distribution of study participants by field of study

Participants of the study were drawn proportionately from diverse fields of study being offered at Haramaya University. The sample was taken from all the eleven colleges of the University based on the sampling frame which consists of the list of postgraduate students actively attending the study programs during the COVID-19 outbreak. Hence, **Table 5** depicts the distribution of the study participants across the eleven colleges of the University.

Table 5 shows that proportionally high percentage of participants in the sampling distribution was taken from the College of Agricultural and Environmental Sciences 111 (34.9%) followed respectively by the College of Health and Medical Sciences (20.4%) and the College of Social Sciences and Humanities 35 (11%). The least

		Frequency	%	Cumulative %
Valid	Male	241	75.80	75.80
	Female	77	24.20	100.
	Total	318	100.	

Table 3.
Gender.

		Frequency	%	Cumulative Percent
Valid	Under 24	14	4.40	4.40
	25–34	260	81.80	86.20
	35–44	38	11.90	98.10
	45–54	4	1.30	99.40
	55–64	2	.60	100.
	Total	318	100.	

Table 4.
Participants' age category.

		Frequency	%	Cumulative %
Valid	Agricultural and Environmental Sciences	111	34.90	34.9
	Business and Economics	9	2.80	37.7
	Health and Medical Sciences	65	20.40	58.2
	Natural and Computational Sciences	23	7.20	65.4
	Social Sciences and Humanities	35	11.00	76.4
	Education and Behavioral Sciences	26	8.20	84.6
	Computing and Informatics	9	2.80	87.4
	Haramaya Institute of Technology	14	4.40	91.8
	Law	5	1.60	93.4
	Veterinary Medicine	14	4.40	97.8
	Sport Science Academy	7	2.20	100
	Total	318	100	

Table 5.
Participants field of study.

percentage of participants were taken from the College of Law 5(1.6%) followed by the Sport Science Academy 7(2.2%).

4.2 The enablers or barriers to attending online education system

4.2.1 Perceived experience on the nature of online teaching-learning process

The extent of participants' perceived experiences on the nature of online teaching-learning process is depicted in **Table 6**.

Descriptive Statistics			
	N	M	SD
1. The online learning provided with improved accessibility to information	318	3.02	1.28
2. The online learning offered access to standardized and updated contents	318	2.80	1.24
3. I found online learning cost-effective	318	3.00	1.41
4. The online learning enhanced the learning process	318	2.99	1.26
5. The online learning enabled me to use my time effectively	318	3.11	1.28
6. All things being considered, I prefer online learning to face-to-face learning	318	2.70	1.34
7. The online learning platform increased my interest in learning	318	2.77	1.27
Valid N (listwise)	318		

Table 6.
Participants' perceived experiences on the nature of online teaching-learning process.

The study sought to find enablers and barriers perceived by the study participants in relation to the nature of the online teaching-learning process. As it can be seen from **Table 6**, the study revealed that the study participants had positive perceptions towards all seven (7) items pertaining to the nature of the online teaching-learning process as indicated by above-average mean score. By arranging the mean scores for each of the items in their descending order, it could be seen the extent to which the nature of the online teaching modality was perceived by the study participants as enabling in terms of using their time effectively (3.11), providing them access to information (3.02), cost-effectiveness (3.0), enhancing the learning process (2.99), offering them access to standardized and updated contents (2.80), and pulled their preference towards the online modality as compared to the face-to-face modality despite recent exposure to the former (2.70).

Participants perceived various degrees of negative experiences on technological issues. **Table 7** indicates that participants agree that there was slow interruption and unreliable internet connection. Although it is possible to understand that there were good experiences among individuals, **Table 7** depicts that there were barriers to technological issues for participants to some extent. In this regard, participants had problems/limited access to computer or other devices used for online learning, consistent power/electricity supply suitable for online learning, technical skills of using the computer and the internet, to afford the internet cost, and problems with consistency and reliability of the online learning platform.

From **Table 8**, participants agree to some extent on perceived experience regarding process of academic issues. Such experiences were perceived to some extent as the quality of the learning materials was high, and the learning materials were designed to facilitate learning independently. There was a hard time understanding the learning materials by their own selves; there was adequate communication between the teachers and students during the online learning, and there was good interaction among students during the online learning, which obtained adequate support from course instructors and adequate guidance and support were provided from the department. The library service provision was suitable for online learning, and the online education was well organized and administered, They had difficulty adjusting to the online learning platform, but they found the

Descriptive Statistics			
	N	M	SD.
1. I had lack of/limited access to computer or other devices used for online learning	318	3.04	1.43
2. The internet connection was slow, interrupted, and unreliable	317	3.54	1.50
3. There was consistent power/electricity supply suitable for online learning	318	2.75	1.45
4. **I had a problem in technical skills of using the computer and the internet	318	2.73	1.40
5. The internet cost is affordable to be used for online-learning	318	2.61	1.37
6. The online learning platform was consistent and reliable	318	2.70	1.25
Valid N (listwise)	317		

Table 7.
Perceived experience on technological issues.

Descriptive Statistics			
	N	M	SD
1. The quality of the learning materials was high	318	2.77	1.31
2. The learning materials were designed to facilitate learning independently	318	3.00	1.23
3. I had hard time understanding the learning materials by my own	318	3.00	1.28
4. There was adequate communication between the teachers and students during the online learning	318	2.79	1.33
5. There was good interaction among students during the online learning	318	2.66	1.28
6. I obtained adequate support from course instructors	318	2.74	1.19
7. Adequate guidance and support were provided from the department	318	2.81	1.32
8. The library service provision was suitable for online learning	318	2.49	1.36
9. The online education was well organized and administered	318	2.62	1.24
10. I had difficulty adjusting to the online learning platform	318	2.98	1.27
11. Variety of teaching-learning methods were used during the online learning	318	2.53	1.21
12. I found the online education correspond with my learning style	318	2.83	2.51
13. Variety of assessment methods were used during the online education	318	2.67	1.26
14. The assessments used fairly measure knowledge, skills, and attitude change in students	317	2.83	1.42
15. The assessments were fairly distributed in terms of time.	318	2.74	1.26
Valid N (listwise)	317		

Table 8.
Perceived experience on process of academic issues.

online education corresponded with their learning style. Variety of assessment methods were used during online education, the assessments used fairly measure knowledge, skills, and attitude change in students, and the assessments were fairly distributed in terms of time.

The average score in **Table 8** indicates that participants disagree with perceiving experience as the library service provision was suitable for online learning and the usage of variety of teaching-learning methods during online learning.

Table 9, it is indicated that participants agree to some extent on issues include they had limited space at home for attending online learning, having several responsibilities to fulfill at home that negatively affect their involvement in online learning. They had to work for generating income alongside their online learning due to financial constraints, and they had problems fulfilling basic needs (food, clothing, shelter, etc.) that negatively influence engaging learning, mobility restrictions due to COVID-19 had negative effect on my participation in online learning their culture was not convenient for online learning, conflict/disagreement in the family affected my engagement in online learning, their parent's lack of knowhow about internet affected my online learning and their friends do not encourage me to attend education through online learning. Participants also agree on issues of sociopolitical instability

Descriptive Statistics			
	N	M	SD.
1. I had limited space at home for attending online learning	316	3.12	1.41
2. I have several responsibilities to fulfill at home that negatively affect my involvement in online learning	318	3.14	1.35
3. I had to work for generating income alongside my online learning due to financial constraint	318	3.12	1.38
4. I had problems in fulfilling basic needs (food, clothing, shelter etc) that negatively influence my engage learning	318	2.72	1.35
5. There was consistent power / electricity supply conducive for online learning	317	2.49	1.33
6. **The internet cost was affordable to be used for online-learning	318	2.30	1.262
7. Mobility-restrictions due to Covid-19 had a negative effect on my participation in online learning	318	3.19	1.39
8. Sociopolitical instability at local and national levels negatively affected my participation in online learning	318	3.47	1.42
9. *Our culture is not convenient for online learning.	318	2.81	1.43
10. *Conflict/disagreement in the family affected my engagement in online learning.	317	2.70	1.33
11. *My parent's lack of knowhow about internet affected my online learning.	318	2.86	1.34
12. *My friends do not encourage me to attend education though online learning	317	2.67	1.34
Valid N (listwise)	313		

Table 9.
Assessment on domestic/contextual issues.

at local and national levels negatively affected their participation in online learning. Participants, however, disagree that there was a consistent power/electricity supply conducive to online learning and that the internet cost was affordable to be used for online learning.

Data on the perceived experiences of enabling and barriers to online learning during COVID-19 were qualitatively collected. And thus, the qualitative data analysis indicates that there were agreements among participants to enable experience of the system. Participants, for example, agree that the online education system was considered an opportunity and an attempt to use the platform for the delivery of education. Related to this, one of the key informants stated that “We are good as a beginner for the online system. We have at least learned something new as a complement to the conventional education system.” The study reveals that there are experiences on enablers in attending online education system. These include access to information, access to standardized and updated content, enhances learning process, enables use of time effectively, enables to increase interest in students learning and it is cost-effective. In the same way, the studies of Twigg [23] and Means et al. [24] showed that online teaching is cost-effective. In addition, it is indicated that online teaching has the potential to reduce the cost of education [21]. Furthermore, it is shown that online courses, videos, and games make learning more

accessible, engaging, and contextualized [29]. Thus, it is possible to understand that online learning during COVID-19 provides opportunity for HELs in Ethiopia to upgrade their technical infrastructure and in making online learning a core aspect of operation.

The study also shows the existence of adequate communication and interaction among teachers and students and support or guidance from course instructors as well as from departments. Online learning enables the provisions of library services to be suitable and it is relatively well organized and administered. Furthermore, the study found that online education corresponds with the consideration of students' learning style, variety, and fairness of assessment methods, opportunity, and attempt to use the platform for the delivery of education. In more detail, the online education system during COVID-19 enabled to meet students from a distance, conduct classes online while students are even on campus, teach anytime and from anywhere undertake online thesis and dissertation examinations, and meet thereby reducing the risk of COVID-19 infection. Besides these best experiences, online education is easy to share materials for all students at a time and has a high tendency to student-centered as it makes students self-reliant. It can be inferred from this study that running online education was appreciated by instructors due to its relative advantage of being the best solution during crises of COVID-19. In the same way, studies like Gautam [83] confirmed that online education enables learning and teaching to be more accessible in both time and space.

However, the study also revealed that barriers to online education include unreliable internet connection, limited access to computer or other devices used for online learning, and problems with electricity supply suitable for online learning. There are also problems related to technical skills of using the computer and the internet, afford the internet cost, and consistency and reliability of online learning platform. In addition, there is difficulty in adjusting to online learning platform and usage of a variety of teaching-learning methods.

Furthermore, the study revealed other barriers to online education, such as limited space at home for attending online learning, burdens of several responsibilities to be fulfilled at home instead of freely involve in online learning, financial constraint, problems related to fulfilling basic needs (food, clothing, shelter, etc.), mobility-restrictions all which have a negative effect on learners' participation in online learning. More specifically, learner's culture, conflict/disagreement in the family, lack of knowhow about internet usage among parents and friends of learners, sociopolitical instability at local and national levels, lack of full awareness and unfamiliarity of teachers and students with the online education system were challenges which affect online education during COVID-19. In support of these findings, studies by Gautam [83], Heng and Sol [84] pointed out that problem with internet connection, lack of experience and insufficient training among teachers, and lack of required resources and tools, are indicated as challenges of online education. Heng and Sol [84] further stated that educational institutions, teachers, and students are not ready to break away from conventional learning and teaching approaches.

From the above results, it is plausible to infer that online education system had several barriers that hampered its smooth and effective delivery. Hence, it does not suffice to say it was successful and efficient owing to the multifaceted challenges/barriers in the context of Haramaya University and probably in Eastern Ethiopian context in general. This result, however, contradicts what Gautam's [83] claim about

online education: online education is efficient, affordable, improve student attendance, and fits different forms of learning styles.

4.3 Experiences of psychosocial wellbeing during online education aimed COVID-19

Table 10 indicates the COVID-19 risk perception where participants disagree on issues including, COVID-19 exits everywhere, the consequences of the COVID-19 pandemic will greatly affect them personally. In case of infection with COVID-19, the consequences for their health will be severe but they did agree with the statement “COVID-19 is just a common cold no need to worry about it.” One reason for the contrasting result could be the use of two negatives in the item leading to misunderstanding of the core message the item conveys. This table also indicates that there was strong disagreement among participants on issues, including they have no means of control over the COVID-19 pandemic, they will infect themselves as well as others with COVID-19, people close to them will die of COVID-19 and believe that people who cough are infected with COVID-19.

Table 11 indicates that the study participants agree to some extent there were psychological problems during COVID-19 at various degrees of severity. In such regard, it is indicated, for example, that the participants had mild to severe levels of anxiety, depression, and stress with average mean scores of 3.39, 2.92, and 2.30 respectively.

Table 12 indicates that participants disagreed to some extent on as they have felt cheerful, calm, relaxed, active and vigorous, and woke up feeling fresh and rested during COVID-19 and their daily life has been filled with things that interest them.

Descriptive Statistics			
	N	M	SD
1. I have no means of control over the COVID-19 pandemic.	318	1.76	1.298
2. COVID-19 exits everywhere	318	2.49	1.576
3. I will infect myself with COVID-19.	318	1.52	1.566
4. It is likely that I will be infected with COVID-19	318	1.56	1.435
5. People close to me are infected with COVID-19.	318	1.42	1.453
6. I will infect other people with COVID-19.	318	1.42	1.436
7. The consequences of the COVID-19 pandemic will greatly affect me personally	318	2.08	1.503
8. In case of infection with COVID-19 the consequences for my health will be severe.	318	1.96	1.482
9. I will die of COVID-19.	318	1.29	1.375
10. People close to me will die of COVID-19.	316	1.33	1.432
11. I believe that people who cough are infected with COVID-19	318	1.40	1.303
12. I do not agree with the statement “COVID-19 is just a common cold no need to worry about it”	318	1.89	2.712
Valid N (listwise)	316		

Table 10.
COVID-19 risk perception.

	Very Less	Mild	Moderate	Severe	M	SD
Depression	16.7	10.7	36.2	36.5	2.92	1.066
Anxiety	6.9	8.2	23.9	60.7	3.39	.906
Stress	24.2	35.8	25.5	14.2	2.30	.991

Table 11.
Depression, anxiety, and stress.

Descriptive Statistics			
	N	M	SD
1. I have felt cheerful and in good spirits while in the situation of the Covid-19	316	2.36	1.506
2. I have felt calm and relaxed during the time of COVID-19.	318	2.10	1.473
3. I have felt active and vigorous during COVID-19.	318	2.59	1.545
4. I woke up feeling fresh and rested.	318	2.55	1.565
5. My daily life has been filled with things that interest me.	318	2.49	1.562
Valid N (listwise)	316		

Table 12.
Subjective or social wellbeing.

As to the psychosocial problems students faced during COVID-19, the key informants indicated the presence of some frustration and stress among students due to fear of missing classes because of unfamiliarity with the online system, poor internet connection, and lack of access to internet. In some colleges, students had severe frustration with the online system, and they even asked for reading materials to be given to them rather than attending online education. They had a fear that they may not complete their education on time due to the challenges they encountered from the online education system and lack of the required resources (e.g., laptop and internet access) to attend education online.

Furthermore, the study also revealed that participants had severe depression, anxiety, and stress. And there were also problems related to frustration, stress, and fear of missing classes because of unfamiliarity with the online system. As a result, students were exposed to tension as they were not able to attend online education effectively. In support of this, Armstrong [85] indicated that online learning lacks human interaction, and it leaves students without sharing various positive experiences with their peer group. In the same way, the study by Sun et al. [86] indicated that students and some teachers had tensions in getting familiar with the online system. In other way, it is indicated that due to the absence of physical interaction between students and teachers, there were experiences related to sense of isolation.

Moreover, unaffordable internet costs for students with low economic backgrounds create psychological challenges in their online learning process. In support of this idea, Jaggars et al. [87] mention that students from low socio-economic families cannot afford broadband connection and basic equipment, such as laptops/computers or tablets. One can infer from the above results that unfamiliarity with the online system and weak internet connection, among others, caused some frustration and stress among students and instructors.

5. Conclusion

COVID-19 has disrupted most industries in the world. Education is the only industry that is completely transferred to online mode in most countries around the world. Online learning was the best solution for continuing education during the pandemic, especially in tertiary education through the barriers/challenges that result in negative consequences in learning-teaching process and its assessment to some extent. There are also problems related to risk perceptions and psychosocial well-being among learners of online education system during COVID-19.

6. Recommendations

Based on the findings of the study, the following recommendations are forwarded.

- The online education system should be further strengthened by overcoming its challenges and should exist side by side face-to-face education. However, it should not be thought to replace face-to-face education.
- In order to make the staff and students familiar with and to avoid the negative attitude towards online education, continuous training and awareness creation programs should be organized for the staff and postgraduate students by Haramaya University.
- The university is also required to have an improved (a large capacity) server (if possible, a separate server) dedicated to online education. This would facilitate the smooth and continuous running of online education.
- The availability of an uninterrupted electric power supply also plays a pivotal role in the provision of online education. In this regard, the university is required to have a reserve power supply system (using power generators) if possible, at college level or for a group of colleges in a pool.
- Rather than massive implementation, the online education system needs to be selectively implemented in some programs and colleges. This is because some programs (for instance, programs that are practice/laboratory oriented) are not convenient for online education.

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Perspective Chapter: Analyses of Literature on the Lived-Experiences of International Post-Graduate Students during COVID-19

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Abstract

Since the outbreak of the COVID-19 pandemic in March 2020, university students experienced difficulties with their education. Research shows that the constraints were mostly felt by international post-graduate students. Possibly, their small social networks, constrained employment options, and travel restrictions worldwide could have played a part. This chapter does a literature review on the lived-experiences of international post-graduate students studying in foreign universities, especially in a South African university. Questions guiding the review were: 1. What inferences are made from literature on experiences of international post-graduate students studying in South African universities? 2. What suggestions are made by literature to alleviate their difficulties? The chapter demonstrates the discriminatory tendencies of government programs and how higher education institutions were required to abruptly close residences. The closure escalated the adversity of most international students. Further, the chapter partakes in the discourse analyses of the plight of international students and hopes to influence future direction of international education policy during crises times. The chapter concludes that in internationalisation issues, a more conscious decision of the interests and needs of international post-graduate students should be seriously considered to be socially acceptable, justifiable and fair.

Keywords: COVID-19, pandemic, international post-graduate students, lived-experiences, social justice, internationalisation

1. Introduction

Students who have crossed a national or territorial border for the purpose of receiving an education outside of their country of origin are referred to as international students [1]. In South Africa, foreign students who enter the country in search of a master's or doctoral degree are referred to as international post-graduate students. In December 2019, Wuhan in the Chinese province of China was the site of the outbreak of the coronavirus, commonly known as COVID-19 [2]. According to [3], the virus' fast spread resulted from many people crossing borders in the beginning

of 2020. This chapter is on how international post-graduate students fared in South Africa during the COVID-19. An overview of international students' profiles has been described, their experiences before and during COVID-19 that includes the process of switching to remote teaching and learning. Writing on their lived experience as they navigated through this crisis will help gain an understanding of their lives in their context and potentially increase a cross-cultural awareness in advancing diversity and increase inclusion on university campuses. Specific information about how students felt and experienced things as well as what administrators did in response to the myriad of problems, their experience will be documented to help educators support the retention and success of international students, particularly, during times of crisis, like the COVID-19 pandemic.

It is worth noting that [4] this explains the importance of concentrating on the academic and daily lives of international students. As such, if this focus is important during normal conditions, then exploring the lived experiences of international post-graduate students in abnormal circumstances such as the COVID-19 pandemic is even more significant [4]. Continue by noting that its significance is not only for internationalisation itself but also for humanitarian work to help them in the future adapt to changing circumstances within a policy framework that includes them. From the above statement, the COVID-19 pandemic seems to have created several real-world problems to be researched by researchers. Foci are on students, either local or international, an exploration of their experiences during crisis times, which in the case of COVID-19, gave rise to pandemic pedagogy.

Authorities in Wuhan, China, reported treating a cluster of dozens of pneumonia cases from an unidentified source in December 2019 [2]. The unique COVID-19 virus was quickly found, and its source was found to be a seafood and poultry store in Wuhan [2]. When in close contact with other people, the coronavirus mainly transmits by 'droplets of saliva or discharge from the nose when an infected person coughs or sneezes' [5]. The virus had already spread across the globe when the World Health Organisation (WHO) declared COVID-19 to be a pandemic in March 2020 [3]. Thus, WHO proclaimed 'a public health emergency of international concern' on January 20, 2020, following the confirmation of COVID-19 cases outside of China in Japan, South Korea, Thailand, and the first case in the United States [2]. Soon, coronavirus cases and fatalities were recorded everywhere, and by March 2020, the number of deaths worldwide had surpassed a million [3]. Given the easiness of transmission of the coronavirus and the sharp rise in cases worldwide, governments all over the world started looking for strategies to stop the virus from spreading quickly [2, 3, 6]. Other countries that had not yet reported their first cases of the virus began looking for ways to prevent it from spreading into their country [7, 8]. However, these efforts appeared to be in vain as all developing countries reported their initial small number of cases, which ultimately grew to hundreds of thousands [3]. This resulted in the announcement of a national state of disaster in many countries, which forced the suspension of most activities, including schooling, and the temporary closure of all educational institutions [9].

South Africa is considered an advanced knowledge hub on the African continent that draws many foreign students, especially African international students [10]. South Africa has a knock-on effect that includes a more reasonable cost structure when compared to the United States and the United Kingdom, which makes it a destination of choice for most African international students [11]. As a result, in response to the COVID-19 pandemic, South Africa declared a national state of disaster on March 15, 2020, to curb the virus's spread [6]. The South African

government-imposed measures based on a risk-adjusted strategy, considering factors such as the number of infections, the rate of spread, the capacity of health institutions, and the economic and social consequences of implemented limitations [6]. This strategy comprised a five-tiered alert system that determined the level of restrictions to be imposed throughout various stages of the national state of disaster. The system went from lockdown level 5 (high spread and low health system readiness) to lockdown level 1 (low spread and high health system readiness). Most, if not all, students have been affected by COVID-19-related measures like travel prohibitions, campus closures, and the shift to online teaching and learning. Some of these measures may have posed unique difficulties for international students, which local students may not have experienced at all or may have encountered differently. It is against this background that this chapter seeks to document the lived experiences of international post-graduate students in a South African university during the COVID-19 pandemic.

2. The twenty-first century higher education

Without a doubt, the knowledge economy of the twenty-first century depends on higher education [12]. Nonetheless, this century has reached a tipping point because of the huge shocks it has already suffered. The world has changed and technological advancement has reawakened it, including higher education. Since December 2019, higher education has been considerably disrupted and affected by COVID-19. This has severely affected educational institutions, and the consequences are still being felt around the world. Indeed, this global pandemic has severely impacted internationalisation of higher education [13, 14], at best since the World War II.

As a result of the COVID-19 outbreak, several studies have been conducted that look at how the pandemic has affected internationalisation of higher education around the world [15–17]. Numerous findings from these studies have shaped our view of how higher education is changing. While some researchers [18–21] have written extensively about the various strategies used by universities during this pandemic. Maphosa [22] has written about the widened inequality caused by the pandemic due to the unexpected shift to online teaching and learning. Others [20] have focused on how this has affected university students, especially their psychological wellbeing. Though this is not the focus of this chapter, the inability of many universities that formerly relied on international students to recruit them back has been a significant problem affecting higher education because of the pandemic [23]. According to the [23, 24] ‘by mid-April 2020, 94 per cent of learners worldwide were affected by the pandemic, representing 1.58 billion children and youth, from pre-primary to higher education, in 200 countries’. It is evident that higher education institutions turned to online teaching and learning to preserve the 2020 academic year by utilising the Internet and digital platforms. These programs led higher education around the world into the Fourth Industrial Revolution (4IR).

Academics are still unsure of the full effects of the pandemic on students, higher education, and the internationalisation of higher education. Due to this, there is a study gap about how the pandemic is affecting and changing the internationalisation of higher education around the world. Toquero [25] calls on educational institutions to ‘conduct research to proliferate and record the effects of the pandemic on the educational system’ because of this gap. Indeed, information gained from such studies will assist different stakeholders in engaging with and comprehending current

issues and developments to successfully execute the necessary policies and practices to strengthen the university's essential components, as outlined by [26]. This chapter attempts to fill that gap. The current chapter focuses on international post-graduate students' lived experiences during the pandemic because of the disruption caused by the global pandemic. Such understanding, according to [15], gives higher education around the world the chance to adapt and innovate in a future of uncertainties such as during crisis times.

3. Empirical evidence of international students' experiences during COVID-19 internationally

As the literature regarding the experiences of international students was reviewed, it was undoubtedly seen that little to no study has been conducted to precisely investigate the lived experiences of international post-graduate students in South Africa during the COVID-19 pandemic. Some studies that have been conducted in different countries, including South Africa and different countries regarding other international students, however, covered different topics on the experiences of international students during the epidemic.

Previous studies that explored international students' experiences in the receiving country identified problems adapting to the host culture and education system, English language barriers and social issues [27]. International students experience greater cultural awareness and sensitivity in interactions with their peers, which results in more friendships with other international peers because their shared experiences contribute to a greater sense of belonging, helping them overcome negative experiences. International students face issues of discrimination and prejudice, particularly concerning ethnicity [28]. Yet, experiences of unintended prejudice and discrimination and perceptions of cultural intolerance, unfairness and inhospitality result in the distrust of international students towards domestic students and host institutions perhaps. Thus, the importance of engaging domestic and international students and faculty in dialogues to exchange perspectives and experiences, so that everyone can benefit from the great diversity in South Africa as a country. Hence, although previous studies have documented international students' challenges in the receiving country, research is needed to investigate the lived experiences of international post-graduate students during COVID-19.

In addition, researchers conducted some studies in China [9], Australia [29], Canada [7] and South Africa [6, 8]. These studies were done on international students, in general, or on specific characteristics regarding international students. Precisely, the studies of [6, 7, 9, 30] have been carried out on international students in general. Along the same line, other research has focused on types of international students such as international medical and nursing students from low-and middle-income countries [31], international first-year university students [32], inclusion in times of the pandemic [6] and the effects of COVID-19 on international students [8]. These studies covered the experiences of international students during the COVID-19 pandemic from different angles such as investigating the impact of the COVID-19 pandemic on international students in Canada [7] and exploring ways of improving adaptability [32]. In addition, other studies looked at the quality of online learning [9], mental health status [33] and inclusion in times of COVID-19: the case of international students in South Africa [6] and the effects of COVID-19 on international students [8]. Therefore, it is presumed at this juncture that if international students

commonly encounter some challenges while studying overseas even before COVID-19, these difficulties may have increased during the pandemic given that there were restrictions of movement, closures of airports and lockdowns, which caused everyone to stay indoors.

4. Overview of international students' profile in South Africa

International students are thought of as degree-seeking and transient students. Most international students in South Africa are those pursuing degrees. The number of overseas students increased by 32.5% between 2005 and 2017 [34]. Nearly 6.5 per cent of the total student population of 1036 984 [35], or 68,036 international degree-seeking students, were enrolled in South African universities in 2017. Half of this rise can be attributed to an increase in the enrolment of international post-graduate students [34]. Aside from the positive economic effects, it seems that international students also contribute to the host nation's intellectual and cultural capital, life experiences, unique skills and perspectives of the host countries. From the foregoing, it can be concluded that the presence of international students fosters cross-cultural understanding while also broadening domestic students' perspectives on the world. Regardless of the positive effects [36], however, posits that international students in South Africa, especially those from other African countries, have always struggled with immigration policy constraints, which are viewed as discriminating even before COVID-19. Brown and Brown [37] add that these international students are a source of revenue to South Africa and equally contribute to the university education system. In the view of [38] although the international student experience is incredibly unique, reflecting the diverse nature of the community, many universities usually categorise international students with local students and ethnic minorities. It is important to note that, feeling at home plays a role in how international students perceive themselves in their university communities and how they interact with their domestic peers. Therefore, investigating the lived experiences of international post-graduate students during COVID-19 becomes imperative.

5. Internationalisation policy of higher education in South Africa

According to [39] it is common practice for higher education in different African countries to internationalise their higher education. Sehoole and Knight [40] explain that internationalising higher education in Africa creates the possibility to attain the desired developments within African countries. Sehoole and Knight [40] posit further that internationalisation of higher education in Africa can help in achieving the Millennium Development Goals (MDGs), which, in return, ensures the strengthening of Africa's development. Nevertheless, in the view of [41], policy of internationalisation of higher education is a topic that has not been recognised in some African countries. For example, according to the Department of Higher Education and Training [11], the existence of international students in South Africa shows the necessity for clear national and institutional policies. Therefore, international students including post-graduate students within South African higher education establishments should be catered for [11]. But it may seem as though, what is anticipated to constitute internationalisation policies in the various higher institutions of learning is not fully known as the question remains, how many international post-graduate

students are duly supported resulting from the provisions of this policy and especially during COVID-19 pandemic? Thus, the necessity for this proposed study which seeks to explore the lived experiences of international post-graduate students in a South African university in a time such as the COVID-19 pandemic.

6. International students' experiences in South Africa during COVID-19

When universities closed for early recess on 18 March 2020, students were asked to vacate university premises and return home [6, 30]. As emphasised by [42] such requests seem to have created challenges for local and international students, especially when travelling home was linked to health risks and financial difficulties [6]. Corroborate the view of McLellan [41] that international students face some additional challenges. For example, contrary to local students, international students often stay in residences even during recess periods and return home upon completion of their studies. Therefore, in this instance, they were expected to make international travel plans at short notice and at a cost that they probably did not budget for given that the outbreak of the pandemic was sudden. In the view of recent research [8] flight cancellations, border closures and international travel bans made it more difficult for international students to travel [6]. Add that with only a few days between the national lockdown being announced and it taking effect on 27 March 2020, some students had to leave the country in such a hurry that they left behind personal belongings and learning materials. From the above, it may seem as though international students have encountered enormous challenges during the COVID-19 pandemic.

Regarding visa-related issues, on 26 March 2020, the Minister of Home Affairs issued a range of concessions for foreign nationals inside South Africa, including international students that extended their visas until 31 July 2020 [43]. This permitted students to retain the same legal status as they held prior to the lockdown. Subsequently, the concessions were further extended to 31 October 2020 [44]. While these concessions assisted international students, whose visas expired during lockdown in terms of their legal status in the country, there seem to be other material hardships for this set of students due to the closure of VFS (Visa Facilitation Centres for Department of Home Affairs in South Africa) offices and the unavailability of its services [8]. See [8] add that, there was no facility to change the conditions of visas, which affected students who wanted to change universities and could not register at their new institutions. Students who had completed their PhD studies and were due to commence postdoctoral research could not apply for the correct visa and missed funded research opportunities [8]. From my own perspective, it seems as if some universities did not adhere to the visa extension concessions by Refs [43, 44] otherwise students who had completed their PhD studies and were due to commence postdoctoral research could have easily applied for the correct visa in order to not miss funded research opportunities as explained by [8]. Moreover, the DHET announced on 26 August 2020 that the target for completion of the 2020 academic year will be the end of February 2021 [45]. By implication, some international students needed to extend their study visas beyond December 2020. Still in the view of [8] even if an extension was granted automatically by the DHA, international students still incurred additional unanticipated expenses, such as maintaining their medical aid coverage, which is a core study visa requirement in South Africa. Hence, this proposed chapter

on the lived experiences of international post-graduate students during COVID-19 is justifiable and timeous.

7. Coping and support structures

Studies that explored coping and support show that international university students must find ways to cope with adjustment, the social environment and the academic contexts through various support structures [36, 46]. Compared to international counterparts from North America and Europe, not many students from other African countries in South Africa come well funded from their countries of origin [10]. These students thus have additional challenges to meet recurrent expenses like food, transport and accommodation and require financial support [36]. Contreras-Aguirre and Gonzalez [47] identify social support structures as a solution to the adaptation challenges brought by the new socio-cultural environment faced by international students. Leong [48] add that building social relationships produces a link between adjustment and social support, which determines how well international students adapt to the host university. Nevertheless, these social relationship influences do not necessarily involve host populations [36]. International students may find it easy to form social networks with those who share their nationality and cultural background, and these connections often serve as safeguards in their day-to-day experiences [49]. Social networks are important because they may enhance the sense of identity, capabilities and well-being of overseas students. Ref. [36] add that university orientation programs give students yet another chance to make friends and get accustomed to their new surroundings. International students thus struggle with alienation and a fundamental comprehension of the social and spatial settings if they miss orientation [36]. From the above literature, it can be concluded that universities have the responsibility to create and provide support structures and programs that promote social-cultural competencies such that international students get the opportunity to build confidence while retaining their cultural individuality.

8. Diversity

Higher education institutions all throughout the world have made considerable efforts towards welcoming international students in the past 20 years. South Africa with its diverse areas in Higher education institutions (HEIs) aims at providing access to education to all, thus resulting in growing culturally diverse student bodies [50]. According to [51] diversity is not only reflected in ethnic, racial and gender differences but also in people's personalities, education, background and functioning. Differences in age, gender, and sexual orientation constitute the primary dimension of diversity, whereas differences in religious orientation, education, geographical location and income constitute a secondary dimension [36]. Diversity in this study could, therefore, be defined as a collective mixture characterised by similarities and differences. A mixture, according to [36], is often a source of different tensions and complexities where diverse groups usually require diversity management. Judging from the above, it can be said that institutional administrators are therefore required to ensure equity and fairness in integrating similarities and differences between all students into the institution.

The principle of equity implies a critical identification of existing inequalities, which are the product of policies, structures and practices based on background, geographical location, race, gender, disability and other forms of discrimination or disadvantage. All existing forms of unjust differentiation should be abolished to empower, give financial support and bring about equal opportunity for individuals (who are students in this study) and institutions [52]. Institutions must ensure that the practical implementation of rights is secured through access and social inclusion for there to be equality of success [53]. A universal human right, social inclusion in South Africa is defined as a collection of shared values, norms, ideals and objectives that promote integration. Therefore, social inclusion unites people of all races and transcends national building and social cohesiveness to eliminate prejudice and intolerance [52].

9. Conclusion


Undoubtedly, COVID-19 has disrupted the fundamental operations of university institutions. Nevertheless, it also serves as an eye opener for higher education institutions (HEIs) to positively adapt to an environment of internationalisation that is constantly changing and to become institutions that are more receptive and more inclusive. This includes using more innovative methods to support the diverse student populations, especially international post-graduate students, who are extremely important to the development of the South African Higher Education and the intellectual and cultural diversity of South African universities. Thus, this current chapter sheds light on the analyses of literature on the lived experiences of international post-graduate students during COVID-19, including the scarcity of social opportunities, difficulties obtaining and utilising healthcare in South Africa, immigration laws that hampered their academic advancement and career preparation and incidents of xenophobia and discrimination. Many of these obstacles already existed before COVID-19, but the pandemic made them worse. This chapter thus draws attention to crucial problems that must be solved to create an environment on campuses that is more inviting and inclusive of international students and places a high priority on their academic and well-being, especially in crisis times such as the COVID-19 pandemic.

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Chapter 8

Perspective Chapter: Addressing the Learning Management System Challenges during the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic revealed that most face-to-face higher education systems were not prepared to deliver online education. In this book chapter, the authors narrate how a learning management system, which was only used as an optional delivery mode before COVID-19 at a Comprehensive University in Botswana, has become an institutionalised system during and after the COVID-19 crisis. The book chapter clearly demonstrates the performance bottlenecks emanating from both the hardware and software stacks of the learning management system. Furthermore, the authors expound on the detailed end-user challenges by unravelling the varied performance and optimisation techniques used to mitigate the challenges faced.

Keywords: blended learning, learning management system, performance optimisation, mitigation, instructional design, eLearning

1. Introduction

The academic years, 2020 and 2021, were very challenging for most academic institutions around the world because of the COVID-19 pandemic. The government of Botswana declared a state of emergency by intruding successive extreme lockdowns and social distancing in the first week of April 2020, and the only Comprehensive University in Botswana (UB) was forced to close and suspend its teaching and learning activities. Most of the institutions, including UB, had to refocus their resources to fight the pandemic and ensure that teaching and learning continue so that learners are able to complete their programmes and graduate.

Although UB has been engaging in eLearning for more than twenty (20) years, first with WebCT and then Blackboard, and then later with Moodle Learning Management System (LMS), only a small percentage of academic staff were using this alternative teaching approach. The main reason was that eLearning was optional and there was no policy to compel staff to engage in it. However, things changed drastically during the COVID-19 pandemic when extreme social distancing was introduced.

The institution put in place various strategies to mitigate the spread of the COVID-19 virus among members of the university community by putting in place the necessary ICT infrastructure, installing online streaming equipment and using Moodle LMS.

Furthermore, lecturers were advised to deliver their lessons remotely and ensure that students receive their learning materials and attend lectures remotely. Lecturers started recording their lectures and sending them to their students who were all over the country (and even abroad) on lockdown through the Moodle LMS and other Web 2.0 tools. Despite all these efforts to ensure continuity in instructional activities, there were challenges of lack of resources to access learning materials, lack of skills to teach and/or learning online, unavailability of internet in some areas, etc.

The challenges that UB experienced were faced by other institutions not only during the COVID-19 pandemic but even before and after the COVID-19 pandemic. These challenges include unreliable internet connectivity [1–6] and lack of training on the use of the LMS [1–6]. There have been challenges such as resistance to change, high costs and lack of funding in some institutions [1–6]. In some instances, because academic staff have other duties to perform, it was observed that they could not concentrate on working in the LMS [1–6]. However, although the challenges observed from the previous literatures are very similar to those that UB faced, there is need to extrapolate these challenges within UB's context.

2. Elearning challenges faced by UB during the COVID-19 pandemic

The COVID-19 pandemic brought a myriad of teaching and learning challenges at UB. These challenges span from the preparedness of university policy framework, digital and social inequality to the preparedness of the academic staff and students to learn online [7].

2.1 Digital and social inequality

The use of digital technologies due to pandemic-induced swift transition from physical to digitalized remote teaching and learning exacerbated digital and social inequality amongst students as some of them did not have appropriate gadgets and internet to access their courses. The digital inequality in developing countries like Botswana is closely tied to contextual economic environment, such as income, utilisation of resources and unemployment levels, and these have an effect on how students use information and communication tools [8, 9]

For instance, students living in rural areas where the ICT infrastructure is poor are more likely to have challenges in accessing course materials through eLearning platforms from their instructors than those in urban areas [8, 9]. Similarly, the pandemic increased the existing gap in social inequalities between students in that, students from economically poor families were not able to afford laptops, smartphones, etc., and buy data, or have access to internet, compared to those in more affluent families. Hence shifting to remote teaching and inequality in access to digital learning opportunities had an adverse effect on some students.

2.2 The use of Moodle LMS for teaching and learning

Moodle learning management system (LMS) was used as the main platform for online teaching and learning, which was mostly used to host learning materials and

for assessment purposes. Lecturers placed their lecture notes, handouts and web resources such as videos, e-books and journal articles meant for students to access and use for their learning. Some courses were also using tools within Moodle, such as assignment and quiz tools, for online assessment. There were also those courses that used communication and collaboration tools such as news forums, discussion forums and email to communicate and collaborate within their courses. It was only less than fifty percent (50%) of courses offered at UB that used Moodle LMS. Some instructors were reluctant to use Moodle LMS, and this was due to several reasons, such as perceived ease of use, attitude towards technology, technical support, training, personal innovativeness and self-efficacy. These are the same factors identified in the literature that have a significant relationship with behavioural intention to use a learning management system [1, 3–5, 10, 11, 13].

However, the UB has invested in ICT infrastructure and eLearning platforms to increase access to its programmes. In its University Strategy to 2028/29 'Creating a Future for the Knowledge Generation', the key external drivers that could impact the university were identified as to promote access and equity in the higher education system and to rapidly develop information and communication technologies (ICTs), hence creating new opportunities for teaching and learning. The underlying rationale is to enhance the learning and teaching at UB by using blended learning context to support the development of innovative ICT-based content, services, pedagogies and practice for lifelong learning.

Hence, before the pandemic eLearning at UB was regarded as an option and some instructors hardly used Moodle LMS in their instructional activities. For instance, there were 1,974 courses offered at UB and only 655 (33.2%) of courses were offered online. Some instructors regarded use of digital technologies to teach as an extra job for them since they had to prepare their materials before uploading them to the eLearning platform. Efforts were made by the institution to address some of these factors, by, for instance, providing continuous training to equip instructors with the necessary skills of using the LMS for teaching and learning purposes, and improving their confidence. As postulated by Cigdem and Topcu [14] that instructors may not use LMS features efficiently if they lack training. The eLearning workshops conducted by the University of Botswana emphasized the benefits (or advantages of using the LMS) so that instructors understand the usefulness of the system in improving their teaching.

The hard lockdowns that were imposed throughout the country at the beginning of year 2020 forced the institution to come up and implement emergency preparedness plans and engage in emergency remote teaching (ERT) to try and complete the academic calendar. The ERT as it was commonly referred to was meant to provide short-term and reliable access to instruction and support during the pandemic relying heavily on available eLearning platforms. However, since UB was not fully prepared for the rollout of emergency remote teaching as it came at a very short notice, the implementation of emergency preparedness plans was haphazard and under-resourced. Even though the use of digital technologies has been on the agenda of UB for some time, neither instructors nor students were sufficiently equipped or skilled for remote teaching. Although continuous professional development on use of technology was provided all along, the efforts were intensified during the pandemic.

2.3 Moodle server infrastructure

The UB started using Moodle LMS as its main learning management system in year 2019 after phasing out Blackboard. The system was locally hosted, and the

installation was done by the resident information technology (IT) experts and the storage was 300GB and content server increased from 450GB to 650GB, expandable to 2TB, which was supplemented by the 1TB granted on OneDrive for every staff member and UB student. All these expansions were done in preparation for the emergency remote teaching and in anticipation of the increase in online courses and learning activities that would be taking place online. However, it did not take long to experience storage limitations since a lot of content was generated by users, which needed a good amount of space to grow. Most of the content generated was multimedia content for eLearning materials such as videos downloaded from YouTube, lectures recorded from MS Teams and other lectures recorded by UB multimedia development and production team.

As the number of users increased the performance of Moodle began to be very slow, resulting in some of the activities such as the Quizzes and Assignments not working optimally. For example, online tests and examinations were adversely affected. In some cases, instructors could not upload course content as the system gave some error messages. The situation was exacerbated by the low bandwidth since UB at the time only had 2.5 Gbps internet connectivity, and worse still there were a lot of power outages at Botswana Power Corporation (BPC) and sometimes internet was not available at Botswana Telecommunication Corporation (BTC).

As indicated earlier that UB locally hosted its Moodle site, which therefore meant managing our own server. Initially, this seemed to be easier, but as the number of courses and users grew, it proved to be a very demanding task more so that IT department was not familiar with Moodle LMS, which has large and complex tools that require extensive technical expertise on server maintenance and technical support. The IT staff had to perform updates of new versions of Moodle, build new features, resolve technical glitches and manage integrations. Some instructors decided to use other technologies to reach their learners.

2.4 Use of other eLearning platforms

In addition to Moodle LMS, the institution used various eLearning platforms such as ZOOM, Microsoft Teams, Bluejeans, and social media (e.g., WhatsApp, Yammer and Facebook) to conduct instructional activities. The School of Medicine immediately after introduction of extreme social distancing started using Zoom. With this platform, they were able to do lecture presentations and hold discussions. But the excitement of using this platform did not last for long as there were issues with licensing and limitations in the number of people allowed to use the platform at a given time.

The university then licensed Microsoft Teams and all staff and students at UB have accounts in Microsoft Office 365 (MS 365) and each instructor has been allocated 1TB of storage in MS 365. This allows lecturers to share content in MS 365 OneDrive with their classes through a link in Moodle. MS 365 also has Yammer, which works like Facebook. All staff and students have access to it. Only UB community would have access to Yammer as compared to Facebook, which is open to public. It is ideal for collaborations and class discussions. Students can continually interact with students in the class. Instructors would need to create classes using their class list. Henceforth, MS Teams platform in MS 365 was also used for online learning. The instructors could also do a live feed (Synchronous)/live streaming in which the students beyond classroom contacts were able to join and be part of the class. This catered for most of the University of Botswana international students abroad who could not attend

lessons because of the restrictions caused by COVID-19. MS Teams was also used for online collaboration and video conferencing. Staff duplicated content in Moodle to Office 365 as backup in case the content is not accessible in Moodle ensuring the online concept of everywhere, anytime and anyhow (flexibility).

The usage of social media platforms also increased, and some lecturers preferred to use social media platforms since most of the tertiary students engage through mobile technologies, which in a way influence their motives and social interactions [7, 11–17]. The most widely used application during COVID-19 period was WhatsApp. WhatsApp allowed lecturers to create groups for their classes according to class lists. With this platform, instructors could do text messaging, group chat, WhatsApp on web and desktop, voice and video calls, photos and videos, document sharing and links to web addresses [4, 6, 8, 16], and students were able to ask questions and interact with their peers. Students could do individual or group assignments and submit them online. The challenges that were observed were uploading very heavy files, storage of generated content and conducting online tests and exams.

2.5 Online lecture streaming equipment

As alluded to earlier, the institution used Microsoft Teams application in Microsoft Office 365 to record lectures and send them to students, and through this, it emerged that lecture recording is thus generating media-rich educational resources for blended and virtual classrooms. Hence, since the realization of the media-rich content (particularly audio and video), UB saw the need to install lecture recording equipment in a lecture theatre. Therefore, in 2021, nine (9) lecture theatres equipped with recording and streaming equipment to facilitate and enhance full implementation of blended learning as envisioned through the UB strategy. The system capture all audio and video of the instructor and all projected on-screen content and make the finished materials available to students via the Moodle Learning Management System (LMS). Students can attend live sessions wherever they are, even abroad. With some registered and potential students from across Botswana borders, online streaming would enable them to register, start and complete their studies competently without setting foot at the physical campus.

3. Addressing the LMS challenges during the COVID-19 pandemic

The challenges of the LMS users at UB faced spanned from the lack of technical skills to understand the hardware and software stack of Moodle LMS, professional development challenges, dealing with a hybrid eLearning platforms and resources, governance and policy issues. This section details the measures put in place to address the LMS challenges herein mentioned.

3.1 Professional development initiatives

The Educational Technology Unit of the Centre for Academic Development at UB embarked on a continuous professional development (CPD) for academic staff. The emphasis of the CDP initiatives for academic staff at UB is on the strategic integration and use of technology in teaching and learning. It is worth mentioning that these CPD initiatives were provided all along, but the efforts were intensified during the COVID-19 pandemic. As an example, from February to November 2021, 266 instructors were

trained. This was possible because the eLearning workshops were facilitated through MS Teams, hence there was no challenge of accommodating many participants since they could learn from anywhere. The training covered the following topics:

- Introduction to eLearning
- Instructional design for eLearning
- Introduction to Moodle
- Moodle communication tools
- Moodle assessment (Assignment/Tests/Exam)
- PlagScan (Moodle)
- Effective use of multimedia graphics
- Teaching in the technology enhanced classroom

Coupled with the operationalisation of a dissemination and the workshops herein mentioned, the Educational Technology Unit offered webinars, showcases, panel discussions and demonstrations on online instructional design, and remote teaching and learning strategies. It was observed during the course migration process that some lecturers recycle materials from past years and have a lot of redundancy in the courses. The multimedia files being used in the courses have made some course to be voluminous, with some reaching 4 GB. A suggestion was made to use a repository that stores large multimedia files, and these will only contain a reference link in the Moodle LMS.

3.2 Knowledge of the Moodle LMS ecosystem

In the first quarter of 2022, it was observed that the setup of the Moodle LMS application needed to be optimised further by someone with higher skills than what the IT Department at UB currently possesses. The skills required included web server management, database optimisation, Moodle LMS performance tuning and optimisation and PHP programming skills. In general, UB required IT skills that address all issues related to the software and hardware stacks of the Moodle LMS infrastructure. A Moodle LMS task team with its terms of reference was established. The terms of reference of Moodle LMS task team were:

- Recommend through a report a cloud hosting solution for the UB Moodle LMS, which leverages the current Moodle infrastructure, resources and business processes.
- Formulate and recommend strategic and operational plans for Moodle LMS, which align with the university's teaching and learning core line of business
- Monitor and evaluate the progress and performance of the Moodle LMS once hosted in the cloud.

- Formulate and advise on the responsibilities of IT department and Educational Technology Unit with respect to the use, administration, maintenance and review of the Moodle LMS within UB.

When the Moodle LMS was eventually hosted into the cloud there have been some positive rewards that came along with moving Moodle LMS to the cloud, and these, from an institutional point of view, should be regarded as constituting the best practices. As an example, by hosting Moodle LMS in the cloud, there is a seamless migration to the latest stable version of Moodle, which will contain the latest patches and bug fixes. The hosting company has an in-depth knowledge of the software stack for Moodle, and this is coupled with the in-house knowledge of Moodle, which has made the application stable.

3.3 Moodle LMS performance tuning and optimisation

Moodle LMS has been known through various research studies that it contains some performance issues [1–4, 6–9, 15, 16]. Therefore, the Moodle system administrators should test the performance of the system by subjecting it to different number of users, especially at a time for conducting online quizzes with configuration of RAM, and the hard disk drives (HDDs) taking not of the virtual address space [16–22]. The Educational Technology Unit has implemented various caching optimisations by optimising the Moodle unified caching setup, utilising a combination of OpCache, MemCache, APCu, Redis and local and shared file system caches [23]. These implemented caching optimisation procedures and performance evaluation measures further stabilised the Moodle LMS and enhances positive user experiences. The caching optimisations and compression techniques implemented in the Moodle LMS at UB have resolved most of the serious performance issues, especially when several participants are attempting quizzes at the same time or when collecting feedback from participants, etc.

As a result of these experiences, the Educational Technology Unit at UB concluded that the entire Moodle LMS optimisation should be tested based on load testing the Moodle system, concurrently identifying and removing the performance bottlenecks. A proper and sound understanding of systems analysis, design, testing, implementation and review methodology needs to be understood by both IT and the educational technology unit teams to avoid any inconveniences to the users.

3.4 A skills development plan for IT and Educational Technology Unit staff

The institution recognised that Moodle LMS is now hosted in the cloud and an inventory of the skills gap in both IT and the Educational Technology Unit was done. All the necessary training needed by both departments was identified. It was agreed that the training must be given and passed for UB to be certain that it has the skills to manage and administer Moodle.

3.5 Addressing eLearning governance and policy issues

UB has initiated the development, implementation and institutionalisation of an eLearning Strategy (2022–2027), which intends to provide a holistic approach to facilitating eLearning initiatives in a well-coordinated and structured manner aligning with the university's aspirations on the scholarship of learning, teaching and

research. Accompanying the eLearning strategy is an eLearning policy, which has been well received within UB as it ensures that it has an equal footing in participating in the ICT educational developments. This should improve the university's rating and competitiveness locally and internationally. The eLearning policy is providing a structured assurance that the university remains competitive and maintains its position as a role model for best practices in tertiary education. It has also been observed that the university itself has recognised the need for an eLearning policy.

Ingrained in the policy is UB's own eLearning philosophy, which advances institutional strategic priorities at the same time following global trends in higher education. The knowledge economy in the globalised world means that UB has no choice if it is to survive as a university of the twenty first century. As such the points above present compelling evidence for case for UB to develop and institutionalise an eLearning policy that needs to be actualised by an implementation and monitoring plan through a strategy. The same policy issues that affected UB were also found in a study that addressed factors affecting LMS usage in higher education institutions in Tanzania [24, 25].

3.6 Addressing the bandwidth and network infrastructure

The IT department at UB reviewed, redesigned and implemented all networks related issues including bandwidth, load balancing and security issues related to the Moodle ICT infrastructure. In the networking infrastructure review and implementation report included is how the computers in some laboratories are now setup for online examinations and tests. The lessons learnt from the report are as follows:

University of Botswana has acquired 6 GBps of bandwidth from Botswana Telecommunications Corporation Limited and has not exceeded 70% of the utilisation. This has been propelled by the drastic use of home internet or mobile internet technology. In short, UB's bandwidth is still more adequate to sustain it for a few more years. UB does not have multi-internet connections due to budget constraints.

- In respect of the network core devices, the core network switch device at UB is running on Cisco C6807-XL. The CPU and Memory utilisation average is 19% and 20%, respectively. The statistics for the usage of the core network devices included CPU utilisation for 5 seconds: 13%/3%; 1 minute: 18%; 5 minutes: 18% processor memory pool total: 1516302416 used: 296147868 free: 1220154548 I/O pool total: 268435456 used: 130472080 free: 137963376, and the resource statuses herein mentioned, confirmed that the device is robust and idling in most cases.
- In respect of the FIREWALL (Perimeter Security Gateway), the perimeter firewall server was bought recently, and it has a horsepower engine, and the report showed that the server is being underutilised.
- In terms of security, the only vulnerability Moodle has is the authentication of users during the administration of online examinations or test writing, especially those who are outside the invigilated computer laboratories or the classrooms, but the system itself is compliant. The system is under in-depth security, being two layers of security gateways such that when the perimeter firewall is compromised, the corporate firewall will still be available for the protection of Moodle.

- With respect to systems resources, reference was made to the reports from both system and server administrators, to confirm the resource utilisation at the application level and in the hardware resource allocation matrix.
- Regarding system coding, the usage and features enabled will heavily impact the utilisation of resources and subsequently it might make the system unusable. It was advised that the system administrator can liaise with both network and server administrators to adjust relevant parameters to cushion any emerged drastic need that has been identified.
- Regarding the computer laboratories, all computers use wired media to connect to the backbone network, at the speed not exceeding 1 GBps. IT has not yet noticed any need to upgrade the backbone connections, as of now they are still being underutilised in respect of the data traffic load. The load balancing is appropriately done at the application level or at the server level in clustering.

In summary, the computer networking infrastructure review and implementation report indicated that the university network infrastructure, despite old devices here and there, remains robust to drive the Moodle LMS. The report further advised to put more emphasis on coding and optimisation of the system as well as the rightful resource allocation. Mostly, users and even some of the administrators have little knowledge to differentiate between network, system and server hardware problems. The source of the problem can only be identified if all relevant stakeholders are called on board to run the right diagnostic tools and analyse the findings. Addressing internet connectivity and bandwidth issues have been also cited in many research studies [26–28].

4. Conclusions

The skills gap within UB in most of the Moodle LMS software stack cannot be understated. Apart from caching optimisations and database optimisation skills that are urgently needed, the LMS administrators should acquire various levels of Moodle certifications. The urge to promote the skills development in Moodle software stack, Moodle administration and Moodle certifications at UB are commendable. As it has been observed that a reactive or a haphazard approach to the design, development and implementation of the Moodle LMS in UB has serious repercussions on the core business of teaching and learning.

Furthermore, it has been shown that there are no concerted efforts between the IT and Educational Technology Unit in consolidating the existing skills, knowledge and expertise of the Moodle ecosystem, and as a result these two departments duplicate duties and work in a siloed approach. This can only be the institutionalisation of policies and service-level agreements.

An in-depth understanding of Moodle assessment activities, from a design and implementation perspective, is required especially the native tools in Moodle that enhance the integrity of the assessments. This is coupled with sound pedagogical approach for online course design should be orchestrated by the Educational Technology Unit. Furthermore, in supporting the Moodle LMS users, an enhanced user support system that has tracking ability such as a helpdesk ticketing system needs to be in place and operational.

As has been alluded in this book chapter, there has been unanimous and compelling evidence for UB to develop, implement and institutionalise an eLearning policy that needs to be actualised by an implementation and monitoring plan through an eLearning strategy.

In a nutshell, the LMS usage challenges that UB encountered during the COVID-19 pandemic is relatively the same as those encountered by similar institutions. Putting in effective and efficient measures to address these challenges will directly increase the user adoption and acceptance of the LMS.

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Conflict of interest


The authors declare no conflict of interest.

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Chapter 9

Enhancing Innovation: The Idea, Validity and Higher Education Reflections from the Field amid COVID-19 Crisis

Charles Enock Mulimba Ruyembe

Abstract

The changes experienced by African higher education institutions over the past decade remain unprecedented. An increasing external pressure, linked to the broader and modern concept of higher education that looks beyond to bringing about a new level of self-empowerment and graduate's employability has consequently, brought about a need for overhauling higher education systems in African countries. Eventually, the validity of higher education reflections from the field amid COVID-19 crisis, casts back a light to conducting a serious educational discussion. This chapter argues neither recognized framework established nor innovative strategies are considered beyond teaching and learning to observe higher education as a fulcrum of knowledge based learning in African higher education. Findings from a qualitative approach using semi-structured interviews with 30 creative entrepreneurs and arts alumni from the University of Dar-Es-Salaam and other East African universities, reveal that many suffer a social undermining problem. Hence, there is an importance of enhancing educational innovation by cultivating social capital while at university.

Keywords: knowledge based learning, human capital, social undermining, educational innovation, fulcrum

1. Introduction

The definition, idea, validity and purpose of higher education reflections from the field may vary subject to the policy, practices, time, laws and culture of a respective country. However, throughout this book chapter, the term "*higher education*" refers to post-secondary education, training, and research guidance that is offered in institutional settings like universities, colleges and vocational-technical schools or centres [1]. Besides, this chapter paints higher education as a link between *education* as a process, *cultural life*, *creativity* and *innovation* within a person. It acts as one's route to success, enhances one's social and cultural connections that are important to maintaining and fulfilling expectations or needs of equality and productivity [2, 3]. In brief, higher education is an evolving concept based on the freeing of the mind that

looks ahead to bringing about a new level of self-actualization and empowerment to an individual student and institutional level for the sound growth of a modern society [4]. It is a process that helps an individual to acquire knowledge and skills necessary for appreciating and adapting to the environment and ever changing social, political and economic conditions of a society by means of which one can realize his or her full potential [5].

The importance of higher education is universally recognized because the entire development of either a developing or developed country is linked to the *type, vision, mission, objectives and quality of higher education*, that respective country provides. Nevertheless, higher education reflections from the field amid COVID-19 pandemic, provides the reasons why this study opted to base on the topic in question, with African countries higher education perspective. The COVID-19 crisis has created havoc and disrupted a good number of lives and livelihoods. This book chapter discusses why there is a need of developing competency and matching skills with the labour market in the student body while at the university, college or vocational training institute. Equally important, the chapter addresses what happens when we unleash the talent of higher education students, and analyses how can digital solutions contribute to helping creative entrepreneurs and arts alumni from higher education learning institutions recover and achieve better lives? The chapter seeks to trigger serious educational discussion so as to find sustainable ways of transforming the world of higher education in African countries paradigm for global sustainability. Hence, a serious educational debate has to be taken on board so as to rationalize a need for the transformation, including the content of the curriculum with special attention to the educational process, identification of a missing link to reflections from the field amid COVID-19 crisis.

To achieve the aims stipulated above, this chapter examines the views of 30 creative entrepreneurs and arts alumni from the University of Dar-Es-Salaam and other East African universities interviewed, to test the major hypothesis that “*there is a strong relationship between the importance of higher education and its being termed as a fulcrum of the academic community in Africa*” From the findings, this chapter develops some implications to support future higher education graduates to advocate for framework establishment through a structured way of conducting serious higher education debates.

Eventually, enhance “*social relations*” as carriers of knowledge that facilitate graduates to keep on learning new things, reinforce old ideas, solve problems, be creative and able to make decisions [6]. Consequently, develop social and cultural connections that are vital for the maintaining of the idea, and validity of higher education reflections from the field through satisfactory conditions of equality and innovative approaches.

2. Literature review

2.1 Higher education as a fulcrum of knowledge based learning

It is becoming increasingly difficult to ignore that higher education has become a real part of the globalization process and not strictly an isolated single nation's property but a cross border matching of supply and demand entity [7]. So far, however, there has been little discussion about the new notion and a broader definition of higher education as an institution and its relevance to beyond teaching and learning

settings, knowledge, skills, economy and labour market promotion in the modern world. The past two decades have seen the rapid development of higher education as a *fulcrum* or a tool that plays a central, essential role and a turning point of creativity, innovation, critical thinking skills enhancement and a stimulant towards lifelong learning, decent work and economic growth.

In the new context of higher education, this book chapter argues that a special attention has to be paid on four major issues, these include: *firstly*, fresh thinking in regard to education and training policy direction. *Secondly*, the content of the curriculum reform and *thirdly*, the entire educational process including pedagogical approaches. *Fourthly*, the new sociological perspective of higher education. In clarification, fresh thinking to the new education and training policy direction must be aligned to the 2030 Agenda for Sustainable Development, adopted by all United Nations member states in 2015. The set of ideas or plan that have been agreed upon as well articulated in Goal 4 on *quality education*, Goal 8 on *decent work and economic growth* and Goal 10 based on *reduced inequality*, must be observed and reflected into our African higher education and training policies. However, the sustainable goals are an urgent call for action by all countries either developed or developing as agreed in our global partnership. With the *content of the curriculum reform*, this chapter's argument is largely based on the current demands, and, trends within higher education and the contribution that curriculum plays in relation to inequality [8], and what is its output to the enhancement of a knowledge based-learning. Study reports show that Universities and higher learning institutions are mainly offering interdisciplinary subjects and programs as an alternative to and in other circumstances alongside disciplinary subjects [8]. Therefore, the focus in the changing world interdisciplinary curriculum reform in the lens of enhancing the knowledge that graduates already have, and for the sake of their understanding what they are going to achieve through practice should be to solve their societies' big challenges. Recent evidence suggests that the knowledge based learning should not be "characterized as an encyclopaedia, with independent entries for information about separate topics, but rather as an interconnected network organized according to relational links between concepts" [9]. In that context, the entire education process including pedagogical approaches at higher education level must help in shaping institution's structure and resources, accommodate social practices, help in nurturing student's talents and give a spotlight on societies problems. Additionally, examine the sociological perspective as a new look at their familiar surroundings and the world with acknowledgement of higher education as a "*global academy*" [8, 10]. In any case, students from both developing or developed countries, will keep on crossing borders and joining higher learning institutions. In that context, higher education as a fulcrum of knowledge based learning, goes beyond the teaching and learning process by freeing the students mind and making individual graduate to look beyond to bringing about a new level of self-empowerment. Eventually, the situation remains as a call for a more socially just higher education system.

2.2 Giving a creative workforce the right future skills

The integration of art-rich education that enhances "*human capital*" being the right skills, knowledge, experience embedded in an individual, critical thinking and problem solving based in real life cycles and grounded in the knowledge of work [11] is of great importance. At all levels of education, the shaping of human capital is of great value because it stimulates graduates' right future skills, enhances employability chances, practices and creative workforce livelihoods. In any case, the integration's

importance is due to the growing dependence on science, technological advancement and placing creative works paradigm at the heart of sustainable development policies as a social phenomenon in the twenty-first century [12].

On the whole, this book chapter reviews the literature concerning the usefulness of integrating the arts, cultural and creative industries in institutional settings due to sociological and epistemological perspectives. The uptake of cultural, creative industries (CCI) and creative economy in Africa and developing countries has been due to the new global economy. As a result, it has motivated youngest people, artists, creative entrepreneurs and arts alumni from various universities, colleges and vocational-technical schools to engage in creative works for the betterment of their future [3]. However, this chapter argues that lack of enhancing higher education systems including establishment of relevant policy frameworks and curriculum reform discourses have significantly contributed to the suffering of employability to many African university graduates. Even so, learners or graduates, policy makers and curriculum developers lack of understanding entry points to the CCI approach and its implications. Under certain circumstances, it has been hard to have in place examples of developed teaching materials by experts' and educational practitioners in Africa Universities that can give proven results and impact [13]. To policy makers, there is a challenge of understanding the sectors value chain, its potential, richness, contribution, application, and marketing strategies of its products, services and goods. That is to say, African governments, policy makers and many curricular developers have let down higher education graduates on every step of their journey from universities or colleges to entering the labour market [14]. These have extended graduates suffering due to the unleashing of the talent of every learner and many graduate without creativity and matching skills for the job market. In clarification, the matching skills include but are not restricted to digital skills for the future workforce like: animation, multimedia production, design in engineering, building and maintaining, IT systems and networks, research and quantitative data analysis [15].

2.3 The missing link to reflections from the field

One question that needs to be asked, however, is what are the missing links to the idea, validity and higher education to reflections from the field amid COVID-19 pandemic. In recent years, there has been an increasing amount of literature on *higher education and labour market policy*. Several studies have revealed that through improving the relevance of curricula, and creating new and demand-driven programs, including career management skills are aspects required so as to constitute to employability in university and tertiary students [16, 17]. Nevertheless, in the face of COVID-19 crisis, due to the lockdowns experienced, no corner of *career, university and learning institutions shutdowns and businesses* in either developed or developing country have been left unaffected by the pandemic. Therefore, the lockdowns bringing about some *social and economic havoc* to all including the Cultural and Creative Industries sector. In clarification, the situation, made artists, freelancers and cultural professionals being exposed to economic shocks due to the loss of their jobs or being destroyed, eventually, many were in a vulnerable position [18]. Admittedly, COVID-19 has proved that there is a need to equip graduates with the right knowledge and skills. So as to make graduates thrive in times of disruption also building a reputation for digital transformation that can help them to survive in the changing environment.

So far, however, reflections from the field show that there has been little discussion about *firstly*, investing in a work based learning competency [19] so as to offer opportunities for further education study, learning new information and skills so as to enhance employability chances to graduates. Studies show that learning new information is an individual phenomenon and a socially situated process which has to have a dual impact of the *global competition*, on one side, offered by the *new information technology*, on the other side [3, 20]. *Secondly*, reflections from the field show that, higher education has become part and parcel of the globalization process [7] due to the fact that there is an increased higher education students' opportunity and mobility. For example, UNESCO reports show that, currently, there are around 235 million students enrolled in universities around the world. Out of the above mentioned amount, 6 million are studying abroad. Whereas, more than half of the identified 6 million are studying outside their region, a figure that has become three times in the last 20 years [21]. Therefore, there is a need of enhancing networking so as to keep abreast interacting with other experts or professionals focused on exchanging information and developing professional social contacts [22]. This chapter argues that a step of cultivating social capital, is of vital importance due to the fact that it motivates the formulation of networks for creative entrepreneurs, creative experts as professionals, arts alumni from global Universities and other higher learning institutions. Thus, the networking allows individuals as graduates to exchange experiences, realize their entrepreneurial capabilities, establish connections, work together in a group, and eventually, achieve a common purpose [21, 22]. *Thirdly*, the research to date has tended to focus on higher education graduates and employability rather than the internal efficiency of pedagogy and pedagogical approaches in elementary schools [23] of the African settings so as to make a significant change. This chapter argues that the effectiveness of higher education merits mostly depends upon internal efficiency of primary, secondary and undergraduate education. In that context, esthetic literacy and future skills are two parallel aspects towards giving a creative workforce the right future skills for work and society. Hence, a relationship exists between esthetic literacy's importance for work and society due to the fact that—esthetics has proved to play an important role in the workforce given the fact that jobs require an ability to formulate new ideas, or rework on something that already exist to produce works of art, cultural products, beauty, creativity, design and curation [24]. For example, in musical works, acrobatics, poetry, architecture, film making, technological inventions and creations, fashion and designing, animation and multimedia productions. *Finally*, another missing link include having in place inadequate qualities and resources in enhancing *innovation* as a practical implementation of ideas that result in the introduction of new goods, services and products through knowledge driven actions, realize graduate's entrepreneurial capabilities for improved education system [25]. All identified challenges above, as missing links on the ground must be linked to transforming higher education so as to observe higher education graduate's livelihoods, African countries sustainable development and for global sustainability. However, there is no reliable evidence that there are new strategies to the enhancement of innovation, linked to the *social and cultural* connections. The connections are important to facilitate graduates to learn new things, reinforce old ideas, solve problems and promote creativity as a core aspect of learning at statutory and tertiary levels of education [26, 27].

3. Methods

3.1 Research design

The study employed a survey research design as a plan, structure, and approach of investigation so as to obtain answers to the study questions or problem [28]. For this purpose, this study utilized an overarching case study strategy that incorporated qualitative research through internet survey approach, face-to-face and telephone interviews to 30 creative entrepreneurs, arts alumni from the University of Dar-Es-Salaam, Bagamoyo College of Arts (TaSUBa), Butimba Teachers' College, Makumira University, Kampala University and other tertiary education institutes in East African region. Much research on innovation and the idea, validity and higher education reflections from the field amid COVID-19 crisis was conducted employing semi-structured interviews and observations to examine alumni reflections and implications from the field amid COVID-19 pandemic from African countries higher education perspectives (e.g. [7, 18, 26, 27, 29]). The study examined participant's reflections through the following key research questions:

- RQ1. How important do graduates consider the lifelong learning notion and how did they draw their connectedness to enhance their social relations?
- RQ2. What are alumni's implications on employability and higher education reflections from the field amid COVID-19 crisis?

The study addressed the questions above through qualitative approach, data collection, and finally, doing the data analysis. Employing a process of reviewing literature on innovation and the idea, validity and higher education reflections from the field amid COVID-19 crisis, this study aimed to extract and identify a broader perception of the participants (alumni) views from the data. The study needed to cast back a light to conducting a serious educational discussion so as to find ways of enhancing educational innovation, closing the gap to reflections from the field, and, looking into ways how to cultivate social capital while at university.

3.2 Participants and procedure

The researcher being a Tanzanian citizen, who has worked extensively in the field of education, arts, culture and the creative industries, understood well the sector. The situation helped to obtain adequate representation of participants using his extensive networks. Also as an insider observer, the researcher offered an advantage in terms of accessing through his deeper understanding of the relations and respondents' views of their social and real world [30, 31]. Hence, all social research is a form of participant observation because the researcher cannot study the social world without being part of it [3, 32]. As identified above, thirty creative entrepreneurs and arts alumni from statutory and tertiary levels of education in Tanzania and other colleges in East Africa region were interviewed. The interview data were collected through audio recordings, and finally, transcribed. The respondents included who graduated 12–60 months prior to the interview due to the fact that these had adequate experience on their tertiary education.

This social research employed four basic methods of social research: interviews, questionnaires, observation and document for the collection of empirical data focused on getting a clear picture of the issue, an accurate measurement, facts and evidence about the subject matter [33]. Only selected carefully, the small, convenient and best sample as representatives of a large population [34, 35] were sent the internet survey to complete with well-articulated purpose of the survey on the front page and relevant instructions on completing specific sections throughout the survey. The emphasis was on gaining respondents' perspectives, developing in-depth insights of the nature of innovation and sustainability, both for graduate's employability and their professional careers [11, 16, 26, 27]. In investigating the social world, the study used semi-structured interviews with open-ended questions so as to gain the best outcome from the research [33]. The questions were about their current employment position be a freelancer or employed in a public or private sector after higher education—their views on internal efficiency of pedagogy and pedagogical approaches in elementary schools. Hence, linked to their human capital nature and new strategies to the enhancement of educational innovation, their employment situation and how this relates to social and cultural connections [35].

3.3 Data analysis

This study was designed as empirical research, thus, it was necessary to develop relevant ideas using empirical evidence as a key point in answering the research questions [33]. The data included recordings of the interviews that were transcribed employing Interpretative Phenomenology Analysis (IPA). The data analysis aimed to explore the details linked to how participants made sense of their personal and social world [36]. The transcription was thematically analyzed so as to enable the study to make connections between graduates, creative entrepreneurs and arts alumni views. The analysis allowed clustering of the themes and continuing the analysis with other rich and unanticipated related cases [37] pertaining to graduates' social capital, educational innovation and implications beyond teaching and learning to observe graduate's employability and higher education as a fulcrum of knowledge based learning.

4. Research findings

The results reflect emergent themes respondents (alumni and creative entrepreneurs) considered worth paying attention to during their studies. Key themes included enhancing educational innovation so as to overcome pressing pedagogy and pedagogical challenges, cultivating their human and social capital or relations as a career of knowledge and a way to boost their competence and talent related skills. More specifically, was the formulation of career networks while at university and beyond so as to facilitate them to keep on learning new things, practicing and reinforcing old ideas, solving problems, being creative and innovative, and, be able to make decisions [6]. Another thematic area was an inclusion of career embeddedness or job embedded professional learning. Eventually, alumni identified the social undermining behavioral challenge.

4.1 Enhanced educational innovation

Having analyzed the data, a key theme emerged was having in place enhanced educational innovation. Alumni emphasized on policy and educational frameworks

reform for modernization of education, overcome pedagogy and pedagogical challenges, focused on the internationalization of higher education as a global issue in favor of the 2030 Agenda for development and beyond. Local initiatives (African countries in specific) was their emphasis so to improve the effectiveness in educational management, having strategic frameworks for African cooperation through joint venturing in education and training with abroad. An emphasis was on changes in policies related with curricula, teacher's ability, accountability and institution administration and management. Hence, new ideas, need to be generated and converted into useful outcomes for graduate's knowledge and skills enhancement, employability, decent jobs promotion and contribution to economic growth.

Lecturers or teacher's ability in some higher education institutions was a feature of some respondents' views in the study. The following sad story from the data describes the need to have competent teachers so as to make students graduate with skills and knowledge in their careers.

“I have a good example of what happened recently to Law School of Tanzania students results in October, 2022. Reports did show an alarming rate of failure to students studying to become advocates. According to the bar exam results, only 26 students, equivalent to 4.1 percent passed, while 342 were required to re-sit for some exams... At the same time 265 students, equivalent to 41.9 were disqualified. Unfortunately, the college administration did throw blames to their former universities for the poor preparations of students in their degrees... in my opinion, I agree to what the Law school administration said... the poor results for the Law School of Tanzania graduates were due to the incapable teachers/lecturers in their former universities and lack of adequate practical work. Nevertheless, one of the key qualities of a teacher is to make sure that his students succeed with knowledge and skills relevant in their fields of study” L2.

Taken together, the above statement from the data and the following (below) quotation from the interview, reflect the feeling of the majority of participants of the study:

“With the globalization – Africa higher education system should never allow themselves to be swept away and lose their cultural heritage. Let young people as graduates be exposed to their cultural heritage to enable them to be creative and innovative so as to contribute to their global development” F 5.

In short the data above, show that the internationalization of higher education has to be based on a conceptual framework. In clarification, the conceptual framework has to stand as a representation of the relationships the African society expects to see between higher education system and balancing young graduate's creative talents vis-à-vis the value of cultural heritage in the global higher education community all in favor of the 2030 Agenda for Sustainable Development and beyond.

Similar examples were outlined by other graduates, highlighting the overcoming pressing pedagogy and pedagogical challenges. As E3 said regarding pedagogical challenges: *“most candidates who graduate from some universities in Tanzania and in some African countries lack requisite academic competence and practical training, at any rate, lecturers specialized in theories need not to be allocated to teach students in higher learning institutions”* While, respondent H8, describes the situation as follows:

“Ok, my argument is based on policy and educational frameworks modernization. What I would like to refer to is, a five-year Higher Education for Economic Transformation (HEET) project in Tanzania through the World Bank support. The project’s main objective is to increase enrolment, improve the training quality and labour market relevant to degree programs. However, I think we have a lesson to learn with reference to global disruption to higher education systems created by the COVID-19 in particular... responding to the challenges, policy makers in Tanzania and East Africa region have got to go back to the drawing board and discuss about ways to reshape ideas and practices in higher education by giving priority to cultural, creative industries and creative economy be at the heart of higher education policy due to its multiple-benefits” H8.

The respondents’ views reflect what they believe is happening on the ground compared to what should happen as well stipulated by UNESCO that higher education has to be based from a human rights perspective. Thus, higher education must be built on a framework for sustainable development linked to Agenda for Sustainable Development Goal (SDG) number 4 that: “respect for life and human dignity, equal rights, social justice, cultural diversity, international solidarity and shared responsibility for a sustainable future” [38].

4.2 Cultivating human and social capital

Multiple creative entrepreneurs and alumni mentioned the importance of cultivating human and social capital, creativity, competence, knowledge and talent related skills while at university. M4 expressed about her passion as a pathway to literacy and employment as follows: *“being at school, from secondary to college level, my early interest in music developed into a feeling and memory of interest I had for a very long time...that one day to become an outstanding musician...thanks “God” after pursuing my degree in Music, I am now self-employed. I think developing talents, skills, knowledge and experience possessed by an individual is of great value not only to an individual but the entire society”* C9 emphasized the importance of cultivating networks of relations between people, groups and entities while at university so as to remain as a social investment after graduation and in times of uncertainty and danger as observed during the COVID-19 pandemic, fuel and food shortage due to climate change. The following comment expounds on that initiative: *“I think of social capital as links, interacts undertaken in a large market place as I experience...me as an IT expert through WhatsApp, Facebook and Instagram during the COVID-19 crisis... I managed to train women creative entrepreneurs how to link or market their products through the internet, sharing their values and understandings, building trust to each other, and eventually, make them work together”* T6 encourages on the importance of enhancing proactive behavior in the workplace as an attribute of social capital for a greater educational achievement, improved employment outcomes and observance of a well-developed sense of mutual trust. *“I believe proactive behaviour in the workplace can help workers to identify and solve challenges before they occur ...it can help them to think out of the box by planning and preparing for upcoming tasks while bearing in mind what to do to others in need of their help...certainly this is one of the most valuable thing someone can have...it builds trust”.*

In interpreting the findings, there are similarities between the attitude expressed by most respondents on human and social capital cultivation. However, the loss of *human capital* (skills, knowledge and experience) embodied in an individual graduate and *social capital* (being the networks of relationships among graduates who live and work in a particular field) were a feature of most respondents’ views. The comments

and information collected from participants show that higher education system changes in (i.e. policies, curriculum, norms, structures, pedagogy and pedagogical strategies) must be made as far as modernization of higher education is concerned. This will arguably equip graduates with the knowledge and skills for their employability, livelihoods, economic, lifelong learning and contribution to African countries and global education sustainable development. In clarification, Education for Sustainable Development (ESD) as well stipulated by UNESCO means:

“integrating key sustainable development issues such as climate change, disaster risk reduction and biodiversity into teaching and learning... applying participatory teaching and learning methods to empower learners to take action for sustainable development... building the capacity of policy-makers and educators to equip learners with the knowledge, skills, attitudes and values they need to address the social, environmental and economic challenges of the 21st century” [39]. In multiple cases, respondents prescribed that through the curriculum the integration of cultural heritage can effectively contribute to education for sustainable development. F7 said, *“the integration of culture in the teaching and learning profile has to start from primary level, secondary schools to University level so as to nurture talents, creativity and innovation... thus, motivate graduates to meet their dreams or their passion in the labour market attained. Hopefully, this will reduce the unemployment challenge and influx of graduates into African big cities with their certificates in search of jobs within the public sector”* However, a lack of funding, start-up finance or capital for expansion of their businesses as freelancers (to graduates) in the arts, cultural and creative industries, as well as marketing of their products due to the monopolization of international markets by a few multinationals has been alumni feeling and a challenge faced by the sector across African countries. In a broader perspective this analysis from the qualitative data suggests: *“Yeah, policy makers, governments and private sector in African countries need to come-up with plans of financing the cultural and creative industries so as to help creative entrepreneurs and graduates from the sector fulfil their desire for better lives,... stimulate employment within the creative sector and contribution to sustainable development through creative economy...rather than the sector remaining poorly resourced and depending on foreign financial support”* G2.

In his classic critique, Canclini describes the above stipulated case as follows: “instead of the death of traditional cultural forms, we now discover that tradition is in transition, and articulated to modern processes. Reconversion prolongs their existence. To reconvert cultural capital means to transfer symbolic patrimony from one site to another in order to converse it, increase its yield, and better the position of those who practice it” [40].

4.3 Career networks and new information technology

The results of the study did show that graduates as respondents across diverse programs agreed in principle the formulation of career networks while at university and beyond. They also mentioned embarking on new information technology as a way towards the enhancement of social relations as career of knowledge and a step that facilitate them to keep on learning, practising new things and reinforcing traditional cultural heritage elements. *“I think, in order to survive in our creative jobs, its high time for us to give fresh impetus to e-commerce channels and social media platforms use so as to connect us with audiences and consumers ... We need to find new ways to supplement our income since Coronavirus pandemic has decimated our creative products income stream”* J4.

Creative business graduates describe that Information Technology (IT) and digital revolution have been to a great deal enablers of development. *“When being at the University, I used to see my colleagues networking through WhatsApp, Instagram and Twitter – I couldn’t really see a need of joining the social media platforms. Then, when I graduated, and specifically, in the middle of COVID-19 crisis and lockdown, I came to realise the usefulness of developing networks and adopting digital strategies...use of e-commerce in marketing our organization’s creative products, goods and services...thanks, technology and digital revolution have opened a new window for graduates and creative entrepreneurs to go digital”* P1. Creative entrepreneurs and business graduates emphasized the value of digital literacy and inclusion of new Information Technology (IT) in the learning and teaching environment. Many respondents did suggest that the inclusion of digital literacy studies, should be from kindergarten schools to university level so as to enhance pedagogy and pedagogical approaches, literacy and skills needed in the labour market and modern education system. Evidently, the quotation below corroborate what graduates emphasized above:

“...the world is changing quickly, and the uses of new Information Technology (IT) do prepare students for more connected interactions within the learning environment and teaching profession” [41].

When commenting about the learning experiences at university, graduates illustrated their views with stories of their own experiences in the field when undertaking a range of internships, project courses and formal placements as follows: *“in undertaking my Performing and Fine Arts Degree, the internship help me to gain experience also satisfy the requirements for the qualification...I got to see a theatrical production process and the conversion of a dramatic text into a theatrical performance is done through an inclusion of a diverse range of art forms from acting, directing, production, lighting stage props, costume design, back ground music and back stage support”* P3. Again, most respondents described the issue as follows. E6 said, *“In my Engineering degree... my course project got me to see how different engineering and technical solutions are made, for example, a plan for a structure, calculations for designs of structures, machinery and equipment and practical implementation related to regulations of construction/production”*.

The above data analysis from respondents are in sympathy with a recent investment made by HEVA Fund, the first dedicated East Africa Creative Business Fund, a business fund that supports the region’s economy; CCI growth dynamics and knowledge facility for creative industries. It underscored the financial impact of COVID-19 and supported the transition to low-touch and digital capabilities on creative businesses in the East African region [42]. Similarly, the data analysis from graduates reflect Cunningham et al. comment as put in the following extract: *“the harnessing of creativity brings with it a potential of new wealth creation, the cultivation of local talent and the creation of creative capital, the development of new export markets, significant multiplier effects throughout the broader economy, the utilization of information-communication technologies and increased competitiveness in an increasingly global economy”* [43].

4.4 Job embedded professional learning

This book chapter argues that a marked change in form, nature and appearance of a graduate is a product of a two-way traffic. Hence, influenced strongly by a teacher’s learning that is grounded in his day-to-day teaching practice, having in place an

effective communicative instructional interaction in the entire education process, and student's critical and self-reflection, open learning by throwing light on the content of the core curriculum [44]. In providing a reasonable argument for the notion of a two-way traffic between vocational education and training and higher education, Harris et al. continue by saying:

“In a society committed to lifelong learning, and with an economy requiring a knowledgeable, skilled, flexible and adaptable labour force, it is essential that there are clear and easy pathways between the vocational education and training (VET) and higher education sectors for reasons of equity and efficiency” [45].

Commenting on the learning and teaching as a two-way traffic, most respondents made these observations:

“I think, the transformation of a trainee into the learning environment, is influenced strongly by the ability of her or his teacher in the entire learning and teaching environment...and activities that are included so as to enhance instructional practices to improving student's knowledge, skills and sociological perspectives all focused on the learner's core curriculum” B10.

“My feeling is that the governments in African countries must be bold on... I mean, must discourage the act of many teachers conducting tutoring in addition to regular school instructions. It is through this many students from poor families who can't afford the tuition fee are half baked or badly taught simply because students are taught less during the normal school hours so as to increase demand for the tuition... Consequently, as observed recently to the failure of many Law School students in Tanzania, one of the reasons could certainly be that!” L9.

The qualitative unit of analysis and the respondents' views above, interprets the notion and context behind a clear definition of the phrase “job embedded professional learning”. Hence, always the intent of a teacher in the teaching and learning environment or pedagogical implications should be that of improving student's learning as stipulated in the respective educational policy and core curriculum. Again, the respondent's feeling in the quotations above are in agreement with those of other related studies which showed, after-school tutoring in African and developing countries is an incentive to teach badly [44–46].

4.5 Social undermining behavioral challenge

Multiple creative entrepreneurs and alumni in the field mentioned the social undermining behavior as a challenge they do experience in their careers that hinder their job success, their reputation and positive relationships. P3 said *“during my internship, I worked with a mentor who bad-mouthed me to the company boss... that attitude of saying bad things about me ruined my reputation and image but now in my new work station... I enjoy... things have changed”* Similarly, some graduates lamented that social undermining behavior at work places distorts one's creativity and innovative spirit as a crucial mind-set that actively seeks change to the continuing success of an individual or an organization. *“I think social undermining behaviour is probably one of the most crucial aspect that prevents someone or something from doing something... it restrains one's creativity at a place of work” G7.* Others noted the value of nurturing

talents, abilities, creativity and developing capabilities for sustainable change in the current changing business market characterized by competition. Graduates went further by lamenting that bad-mouthing hinders worker's success due to the fact that the attitude keep job-related frustrations, and eventually, causes workers to suffer both a sociological and epistemological undermining. M5 emphasized, "*We must get rid of the patriarchal system of despising creative artists, especially, female musicians, fine artists, actresses and others against men...this situation of saying bad things hurts them and sets them back in their career development*".

A change in behavior and attitude was the main concept and a feature of most respondents' view referred to above. The respondents' comments, take a broad view and incorporate factors that are hard to eliminate in a social context because they are features that affect an individual person's behavior, interpersonal factors, attitude, ability, values and motivations. However, such statements are in sympathy with those of Khan et al. based on social undermining and employee's creativity: "our study results indicated a significant negative association between social undermining and employee's creativity, while serial mediation analysis showed that interpersonal distrust and knowledge hiding partially mediated the above linkage" [47].

5. Serious educational discussion and its implications

The findings in this study highlight several implications from the creative entrepreneurs and alumni reflections in connection to a need for enhancing innovation as far as the idea, validity and higher education reflections from the field amid COVID-19 crisis are concerned. The findings as well stipulated above, support a need for conducting a serious educational discussion. Hence, neither recognized framework established nor innovative strategies are considered beyond teaching and learning to observe higher education as a fulcrum of knowledge based learning in African higher education system. Higher education as a central point institution (a shaft on which a mechanism turns or fulcrum) can be termed as an equilibrium of a public policy in the "learning profiles and achievement" [48].

In clarification, the term learning profile and achievement summarize a range of factors. These include but are not restricted to *individual development and characteristics or intelligence, gender and culture* as issues to be considered or given priority in the serious educational discussion and its implications in the African context. Furthermore, this chapter argues that framework establishment has to retrieve the designing of learning experiences premised behind intelligence preferences, and, special consideration to be put on differentiated learning styles or approaches. Hence, study reports show that students learn in different ways and the teaching and learning would be more effective if students could explore content in ways that work best for them [48]. In that context, a special attention in the student's learning must be paid in the *content of the curriculum* and the entire *respective educational process* through knowledge based learning. I mean, all that can occur through the "learning paradigm" as the students' active role in learning and her or his purpose of learning as opposed to "instruction paradigm" (learning and teaching as a two-way traffic) all which have proved to be strong motivators for students. This chapter suggests the following to be taken on board so as to realize a genuine purpose of the 21st Century Education Framework in the African context:

Firstly, Human Capital: As viewed by graduates and confirmed by the findings above, there is a need to transform the traditional education system, formulas and

structure towards raising the level of “*personalization*” in education for graduate’s employability, livelihoods and global development (emotional and cognitive). Therefore, this chapter acknowledges that the model or education framework has to be for guidance, insight and inspiration based on access, attention and specialization embedded in the skills, knowledge, and experience possessed by an individual. As a result, make each and every graduate learn to the highest, deepest, and broader possible levels so as to accommodate the individual intelligence in favor of his or her expectations, needs, gift or talent, experience, preferences, personal traits and knowledge level [49].

Secondly, new Information Technology (IT): study reports and the findings show that the COVID-19 pandemic forced many governments to shift their instructions to e-learning or virtual learning modalities. However, many students in African countries lacked regular access to the internet that could allow them to participate fully into their learning environment [38, 39, 41]. Again, creative entrepreneurs and alumni interviewed confirmed that during COVID-19 crisis and the lock down enhanced their use of *e-commerce business* (the buying and selling of their creative goods or services using the internet, including the transferring of money and data to execute their transactions). In that context, digital literacy competencies (i.e. Information and Communication Technologies (ICT) literacy, media literacy) are very essential skills or supportive systems that students need so as to succeed in their work, lives, businesses and sustainable development.

Thirdly, Social Capital: Despite the fact that the term “social capital” is a complex phenomenon as viewed by many respondents, the data of analysis managed to paint-out a picture of social capital as networks of relationships among people who live and work together and enables them to function effectively [38, 39]. Hence, the findings did show how the established networks helped them to create and facilitate, for example, student-industry relationships through internships, business opportunities and program showcase events like: festivals, exhibitions, competitions and awards, research, education and training programs effectively. This chapter suggests that the inclusion of social capital component in the learning profile is particularly useful for students to cultivate credibility, make big bets on transformational ideas, technology and social wellbeing, especially, for those who are searching for opportunities beyond their boundaries of work, society, area of study and community [40].

6. Conclusion

This book chapter has focused on the idea, validity and higher education reflections from the field amid COVID-19 crisis in African countries. It has articulated ways that are linked to innovation, changes in the core curriculum and learning styles, developing education for creativity focused on producing creative learners in higher education. The chapter has discussed, emphasized and dwelt on higher education beyond instructional activities. How can higher education be observed as a process that can help an individual to acquire knowledge and skills necessary for graduates to adapt to the environment socially, politically and economically at the same time realizing their full potential or intelligence? (emotional and cognitive).

This chapter has outlined why there is a need of conducting a serious higher education discussion and its implications. It has painted why higher education is a real part of the globalization process and embodiment practice that encompasses the interaction of one’s body, thoughts and actions in learning as a lifelong process.

Additionally, this book chapter has suggested and outlined some recommendations. It has pointed out why there is a need of having in place a recognized framework as a guide with key issues to be taken on board in the serious higher education discussion, and, remain as strong motivators for students. These motivators include but are not restricted to:

- Prioritizing of “*human capital*” so as to designate traits, qualities or nurturing a talent a student has that can make him or her unique, determine one’s effectiveness and sustainability for a job, when paired with knowledge and skill learned through experience. Thus, priority has to be put on the enhancement of the level of “personalization” in education for graduate’s employability, livelihoods and global development.

Code	Gender	Year of graduation	Degree/major	Occupation
L2	Male	2021	Law	Advocate, Private Firm
F5	Female	2020	Fine and Performing Arts	Creative expert, Freelancer CCI
E3	Male	2019	Engineering	Founder, Manager Engineering/Architecture
M4	Female	2021	Music	Self employed
H8	Female	2019	Culture and Heritage	Community Manager, Cultural Heritage site
C9	Female	2018	Computer science	CEO, Founder Private Company
T6	Male	2019	Theater Arts	Creative Expert: Public Office, District Cultural Officer
F7	Male	2018	Film and Television	CEO, Creative Hub
G2	Male	2019	Graphic Design	Founder, Managing Director Private Company
J4	Female	2020	Journalism	Journalist, TV and Radio
P1	Male	2019	Performing and Fine Arts	Founder, CEO, Creative Organization
P3	Female	2020	Performing and Fine Arts	Founder, Self-employed
E6	Male	2019	Engineering	Founder, Project Manager (Engineering company)
B10	Male	2018	BA with Education Degree	Teacher, Vocational institute (VETA)
L9	Male	2021	Law (LLB)	Advocate, self-employed
G7	Female	2019	Graphic design	Founder, CEO, Graphic artist
M5	Female	2020	Music	Musician, self-employed

Table 1.
Participants.

- “*Digital skills (ICT) and job coalition*” focused on strengthening of ICT as core components of learning at statutory and tertiary levels of education. These being central to innovation skills linked to individual, social, cultural economic and 21st Century workforce or business development.
- For the higher education achievement in both curriculum and the entire educational process, “*social capital*” as the drawing of networks of relationships support graduated to build greater awareness of the “real-world” insight and experience. Its practice as reflected in the findings will help students to build a portfolio of core, technical, digital, creative, innovative ways across their careers by delivering career-based learning in partnership with i.e. colleges, universities and the community. Eventually, develop a coherent business investment through strategic partnership environment in support of the skills investment plan for the higher education academic achievement.


One implication of the motivators above as new codes of practice for improving the situation, policies for the enhancement of creativity and higher education policy reforms need to be taken into account. This chapter has argued that the best long-term option to change the educational process and classroom perspectives in higher education for graduates’ employability and economic development is to conduct a serious educational discussion. Though difficult to achieve in the African context, it is essential to ensuring a lifelong learning and educational innovation is observed by cultivating graduates’ social capital while at university (**Table 1**).

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Perspective Chapter: Higher Education Challenges

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Abstract

One of the main challenges that current higher education faces is aspiring to a coherent educational formation in a society that is in permanent change. This has direct implications for how a proposal consistent with the demands and needs of the world of work is built and how it innovates as it progresses. Flexibility and contextualization are two fundamental axes when facing the challenge of current higher education. This allows students to present themselves in a dynamic world that is in permanent change. This means that, in turn, the academic offer must, necessarily, diversify, attentive to the rapid changes in the environment. Therefore, offering a wide variety of options gives students a more realistic and achievable possibility of connecting with the world of work. In this sense, it is important to promote the empowerment of students in the face of their professional development within their university educational path.

Keywords: curriculum, flexibility, contextualization, innovation, autonomy

1. Introduction

This chapter is the result of a critical reflection regarding the observed phenomena associated with current circumstances, regarding the tension between higher education, professional training and globalization. This tension is happening in various fields and at different levels within a multifactorial framework, with respect to the ways in which the training of subjects is developed in the university and how this tries to sustain an integral formation of the subject, relevant to the territory and consistent with the training needs of society. For this, topics such as the curriculum, the relationship education and context, innovation and education and subject are developed.

The purpose of this chapter is to reveal the challenges faced by higher education in a context dominated by the information society, by the world of employability and by the internationalization of the economy through large transnational conglomerates. This insight shows the powerful influence that these factors condition, in an ostensible and sustained way, higher education in different countries. These conditions hinder the processes of change in higher education, as well as the opportunity to consider the perspective of the actors themselves of the educational task.

One of the problems raised in the field of tertiary education—which is of great relevance—is not having considered in their approaches the multidimensional nature of the training of university students by focusing on certain edges without examining the entire prism. There exist many factors that affect a successful, quality education. In this sense, the decisions made in curricular planning might be filtered by good intentions, but, nevertheless, they do not delve into contextual aspects that, when it comes to materializing in a project, its one-dimensional nature becomes evident. In the same line, the problem of complex, multidimensional reality is also crossed, in which the subject-student is immersed, who permanently interacts with the social environment and in a certain historical moment.

Additionally, we find ourselves in a struggle of forces between professional training and disciplinary training as one tries to gain ground over the other. Disciplinary training is a desire of the institution, whereas a profession is a demand of our society. The question is: where are the needs of the students themselves? Are the needs of society and the particular needs of students both equivalent?

The needs of civil society versus the individual needs of each subject—understood as a student—can be contradictory, in the sense that the needs of civil society are aimed at resolving problems or conflicts that concern them with immediacy, meaning the demanded knowledge makes sense to the extent that it is useful for something. Instead, there is the assumption that the needs of the students go beyond the utilitarian character that is assigned to knowledge from the perspective of modernity. This will translate into a confrontation between the external and forced need imposed by society versus the internal need of the subject.

Accordingly, the needs of the students could be satisfied to the extent that their expectations can be specified, in an educational project coherent with what the students require, not from the perspective of the desire of the institution, but from the very needs of the students, what one is lacking and what is not there yet, but is being pursued. Following the same idea, it would be necessary to assume that it is about a need for knowledge beyond the utilitarian and that it corresponds to something that they do not necessarily know what it is, but that it is needed. To precisely meet these expectations, the university should pay attention and attend to these needs and sow fertile ground to cultivate them. What does this mean? That said ground should be a space for the discovery, by the students, of that something needed that must be discovered by themselves.

The needs of the subjects. It seems that the needs of the students that have been previously raised go into the idea of a thirst for knowledge and the appreciation of knowledge for the sake of it. Given the insecurity or indeterminacy of what the student is looking for and is not yet aware of, it is necessary to implement a broad training, with a holistic perspective, which allows students to develop fully and that promotes autonomy along the lines of Kant. Following this idea, it is not a transferal but rather a process that extracts what they bring from the base, simply because of their human condition. For this, it is essential to have an educational project that serves as a catalyst, in the sense that it favours the learning process of the students and, consequently, favours the emergence of their potentialities. Said, in other words, that it gives space for intuition development, expectations and, in general terms, those particular needs.

On the other hand, from the perspective of the university institution, there is an itch to impart, in an academic zeal, certain things moved by desire, as opposed to the needs of those who are educated, regardless of whether or not these needs are equivalent to civil society needs. Another issue is that these needs arise at a fixed historical

moment, while the university system, for the most part, has gradually become stagnant in already obsolete patterns. But not only the patterns are obsolete, but also the knowledge has rapid obsolescence, which implies a challenge on different levels.

The institution in its guarantor role—as it sees itself, and with an effort to try to control all variables, promotes and projects a graduation profile where they converge all those elements that enable or ensure success in terms of the demands of civil society, but which, however, in the course of the implementation of the said profile, establish a tension with the students who follow this formative path. Indeed, the desire on the part of the institution to train in the sciences, arts or humanities with a basic disciplinary mastery and investigative adequacy does not allow us to glimpse what is behind the needs of the students in terms of their expectations. These are coupled with a certain historical moment, different from the times with which the university is familiarized. This means that when an educational project is proposed, at the moment of its implementation, there is a gap in terms of that historical moment, a product of the abrupt and inexorable passage of time. In this sense, innovation should be attentive to permanent changes and a dynamic environment. However, even so, there is another point to consider, referring to the motivations that students bring: the cultural capital that is brought along themselves. Many times, the needs are postponed due to the fulfilment of the desire of the institution, which frustrates the formative assessment. And this, produced by a curricular decontextualization does not consider aspects of the culture of the students nor the dynamic character that it has, is a problem relative to space and time.

The question is whether or not there is awareness of the tension that has historically occurred between desire and need, understood as a true need, without pre-existing, along the lines of Ortega and Gasset, valuing knowledge, without questioning whether it is useful or not.

2. The curricular issue

Going to the specifically curricular field, one of the main obstacles that appear in the formative itinerary of students in current higher education is the rigid curriculum, focused on content, which poses a strong tension facing a society that is in permanent change, which forces them to study subjects that do not contribute much to further development according to their interests. This implies a sustained drop in motivation. This can be seen reflected in the low attendance at certain subjects in the classrooms and, consequently, a decline in academic performance. This phenomenon can be understood by a hyper-specialization of knowledge, which makes knowledge decrease and the holistic perspective of phenomena, things and the object of study in question lost. It comes down to a one-dimensional perspective. Indeed, fragmented knowledge does not allow for a complete understanding of the whole and, therefore, makes each of the components on which the study focuses lose its meaning by not having in view the globality of a fact, an object or a certain phenomenon. According to this, the students get lost in an endless maze, trying to make sense so as not to get lost in a sea of split, disjointed, disintegrated information. With all of the above, the students suffer a loss of sense of things, which demotivates them and forces them to select only what is useful. Certainly, the obstacle produced by a rigid curricular structure as a formative proposal against the impulse that the subject brings is not to be taken lightly, nor is the friction of spontaneity against social coercion. For this same

reason, the subjects as students fall into a kind of apparent utilitarianism, moved by exogenous factors, not finding meaning and having to navigate through the mist to try to rescue some meaning.

The challenge, from the curricular point of view, has to do with territorial knowledge, of context, in which a certain perspective or curricular theory makes sense to the extent that it is capable of reading that particular reality and, accordingly, generating a specific educational intervention for that context. In such a way that *'it is impossible to interpret the curriculum and understand the curricular theories outside the context from which they come'* [1].

However, whatever the vision or curricular perspective that supports a certain educational model loses its irradiation in the praxis if the teachers are not aligned with the theoretical concept that underlies the model since they are in charge of operationalizing the curriculum in the classroom. In the same way, if the actors that participate in the learning-teaching process have not been summoned to a kind of 'social construction' of the educational model, it does not represent something significant for themselves either. This has a direct impact on the curricular implementation stage, in terms of little or no symbolic appropriation of the model by the teaching staff.

The critical paradigm, circumscribed in a historical moment in which apparently, modernism has not yet settled, proposes the curriculum as a deliberative construct committed to the emancipation of the subject. In this sense, the intersubjective relationship of the individual with others and with the environment in which it is possible to intervene from reflective ideological criticism stands out. Indeed, *'critical theory implies dialectical reasoning, has emancipatory interest and applies ideological criticism'* [1]. In this regard, [1] points out that *'the critical vision of the curriculum must insist on analysing the relationships of each subject with himself and with his world, generating new knowledge by deepening these interrelationships'*.

Following this idea and from phenomenology, the reality is understood as a mental construction, so it is necessary to reveal the thought of the other, but on their terms, from the subjective. For this reason, the critical paradigm needs the interaction of the actors who move and promote the construction of the curriculum, that is, teachers, students, authorities, administrative staff and teaching support; In short, it requires the participation of the entire educational community.

Having a clear reading of the complex reality in which we live implies going from the manifested or evident to the subjacent, as if to give a structure, in the line of Levi-Strauss, to the prevailing socio-symbolic chaos. Therefore, this issue is not alien to the epistemological assumptions with which a curricular proposal is built, specifically regarding the critical paradigm.

Likewise, it is important to point out that, from this critical perspective, the individual is considered a historically conditioned subject and, as a historical subject, is capable of transforming reality. In other words, the emancipatory character that this paradigm promotes is nothing more than the possibility of transforming reality to unlock those relations of power and domination and, with this, reveal the naturalized to denature it; to make visible what has been hidden.

Within this framework, the role of the teacher is essential because it ceases to be an executor of prescriptive grounds; *'The teacher is self-critical with curricular theories and practices'* [1]. In the same way, the teacher-student relationship replaces the stagnant nature of the vertical relationship with a horizontal relationship, allowing participation and collaboration in pedagogical practice, among the main actors in the educational process, towards, in a teleological sense, a possible transformation of reality.

On the other hand, Lyotard [2] warns that the university has lost its legitimacy vis-à-vis society since knowledge no longer has an end in itself, which is why it has taken on a rather functional character, a characteristic feature of the postmodern condition for these institutions. There is a growing concern about education for employability based on job instability. Given this scenario, the challenge under these conditions seems to be even greater, and along these lines, the production of knowledge is preferable over its transmission. The bet is on interdisciplinarity, teamwork and data management, that is, information, establishing networks for the production of new knowledge. Naturally, these issues should be at the forefront of current curricular planning.

On another note, the issue of curricular flexibility is in line with the autonomy of the students in the sense that they can select their route with structural conditions that allow it. Therefore, it is important *'...as well the need to foster flexibility in the curricular structure of training programs with the purpose to foster and promote opportunities for student mobility, and transfers between programs and institutions, and to offer training routes for students according to their interests, expectations, and academic needs'* [3].

Along the same lines, the structure of training cycles, the system of transferable credits and a modular learning system which organizes knowledge are used. *'The structure of the studies must allow students (...) to develop their curricular itinerary, which allows them to make certain changes in studies, the passage from some phases to others of the same or from certain sections to others within the same phase, all within the framework of a precise and reduced number of conditions. The development of these possibilities requires the conversion of the studies to the credit scheme, as a procedure that measures the teachings received and that facilitates mobility between them'* (Bricall, 2000, Chapter III, quoted at the bottom of the page in Giraldo & Campo [3]).

In summary, curricular flexibility is understood as the opportunities that students have to take courses or carry out curricular activities that allow them to specialize, update or deepen the line they need to develop. Consequently, the curricular itineraries must be contextualized and diversified in terms of their structure, to the extent that they are capable of responding to the expectations and intentions of the applicants, that is, the interest groups. Regardless of the foregoing, certain activities that allow linking with the environment should be built into a curriculum, such as the so-called 'Practicum'. Without going into further detail, it can be said that the 'Practicum' is understood as a curricular component that is carried out outside the institution ('out-door') and that it constitutes an implement that blends academic learning with experience in workplaces (Zabalza [4]). That is a learning device that is linked to the work environment, which allows students to face the world of work in advance and the possibility of mobilizing a series of cognitive, procedural and attitudinal resources to carry out their work in context. The integration of theoretical and practical knowledge that students must resort to and, above all, the 'in situ' experience is highlighted, an aspect that cannot be developed within the institution. Regardless of the above, there is a very important component from the student's perspective: the emotion of the experience, which, without a doubt, substantially favours learning.

3. Education and context

In the first place, it should be noted that higher education is in a complex scenario as it struggles in a globalized world. This phenomenon has brought with it three key conditions that have revolutionized the way of approaching teaching in universities.

The information society, employability and the internationalization of the economy. This has also had an impact on higher education, in terms of the concept of internationalization, given that ‘The increasing tendency to internationalize training in higher education is a reflection of the impacts of globalization in the educational field, whose actions are the product of forces beyond the educational institutions themselves, those that intend to operate under common codes that allow an equivalent certification and that, in turn, allow dialogue with standardized forms of knowledge appropriation’ [5].

The challenge is how to appease the design of an educational proposal around a model that contains the vision and mission of a particular higher education institution, with a complex multidimensional reality. In effect, a certain educational model will always be permeated by the institutional seal and that imprint is led by the biases that the same institution poses. These biases affect curricular decisions, which can be of spatial contextual order, in the sense of territory, political, cultural, economic, technological, dogmatic, religious, philosophical, etc. Continuing with this idea, the educational model is stressed with the contextual demands that society imposes on higher education and is stressed, in turn, by the subjects-students who also have their demands.

Likewise, it must be considered that the demands of civil society are biased by a certain economic paradigm that seeks to increasingly connect education with the market.

From this comes the concept of utilitarianism, in which neoliberal thought promotes education to ensure that good jobs will provide the individuals with a good income. In this sense, knowledge is valid if it is useful for something, in this case, human well-being and material comfort. But it seems that well-being alone is not enough, since the concept of happiness, under this logic, would be determined by the maximization of utilities.

It is pernicious to permeate these ideas that hinder the ideal of knowledge in all its complexity: *‘The idea that society demands a rather technical training from the university is counterproductive in the sense that the generation of knowledge must promote epistemic progress and not the fragmentation of it, reducing all knowledge to knowledge-oriented towards the instrumental, based on employability’* [6].

On the other hand, it would seem that the demands of civil society would suffice to be covered by a teaching of the ‘Unterricht’ type than the one proposed from the humanist assumption by the public university, which would be more in line with the ‘Bildung’ type, a much more comprehensive training that aims to access the best of the subject [7], or better yet, that aims to make the best of it “emerge”.

Certainly, the humanist ideal from a broad perspective of the concept goes far beyond the satisfaction of the utilitarian needs of the civic world, highlighting the value of knowledge based on the transcendental dimension of the human being, in a Kantian sense.

Likewise, it seems that the demands or training needs of civil society become an idea of teaching that should have a functional nature, which can confuse and induce erratic actions to the extent that they are driven by the influence of the context. This is for trying to meet these demands.

Therefore, the implications of the demands of the context stress the ontology and epistemology of the concepts that underlie the ideas and approaches that support educational policies. In this sense, a bidirectional relationship between State and context is not noticed, but rather, it seems an incessant harassment of the environment towards education to conquer the world of work.

The point is to point out these hostilities that public education is facing, especially by state universities, whose discrepancies are observed *as part of a set of phenomena that stress the borders between “the being” of a university that declares itself deeply humanist and the “should be” that society poses, according to its interests, permeated by concepts such as functional and efficient* [6].

Either education has permeated so much or maybe is the economy that has spread vastly that hybrid concepts such as ‘Knowledge Management’ arise, from which knowledge becomes a more competitive and dynamic knowledge economy, a source of wealth creation, cooperation and specialization, and in the practice of knowledge management [8] (https://www.europarl.europa.eu/summits/lis1_en.htm); a kind of knowledge economy, influenced by the business and industrial world. This is the scenario in which individuals operate and with which they interact. This, without a doubt, distances itself from the founding principles of education for the transformation of the human being and for the transformation of the world, not in economic or production terms, but rather, in terms of the transcendence of the human being, in the idea of the rescue of the qualities inherent to the subject and in the conscience of himself and society as a whole.

4. The innovation

Faced with the complex reality, there are not many alternatives to be able to act by the institutional seals nor at the same time in the face of social demands, whose demands, in turn, are conditioned by certain paradigms that force certain ways of acting in the university scene. What is perceived as an effective action is, without a doubt, facing the current challenges, revealing what is hidden by the ideological force that seeks to put the economy above education. For this, it is necessary to give new meaning to those aspects that can contribute to the design strategies and implementation of training plans for innovation. Said process, that of innovation, should be understood as the application of the academy in social practice, given that deep knowledge of social dynamics can generate new perspectives that can better tune in with educational needs and proposals.

The innovation process is understood or should be understood, as a kind of ethnographic knowledge in which those called to formulate an innovation project must necessarily immerse themselves in the culture and society in which they intend to intervene. Rescuing the culture understood as a reference of a patrimonial identity allows a direct link with the environment and, consequently, modelling a proposal consistent with the needs of the environment. In this sense, it is imperative to have strategies and thus respond and commit to the demands and training needs of referents and interest groups, understood as those who pursue a profession.

In an innovation, various actors participate as part of an educational community. In it, teachers must be involved with special emphasis, requiring authorization to generate a relevant, viable, coherent, systematic and argued curricular proposal for professional and disciplinary training in the university space, which can be reflected, deliberated and shared. For this, common spaces for discussion and participation are required, horizontally among all those who make up the community, teachers and students, who must be willing to cultural change in the community itself. This supposes a cultural change within the educational communities. Among many aspects, in light of the results of the analysis and the findings of the immersion in the socio-cultural environment and its corresponding understanding of the territory in its complexity, a training

plan that contemplates, among other things, should be discussed. The sequence of achievements, the articulation of knowledge and the progression of learning.

The demands that are imposed on a certain innovation are stressed by the urgency with which the training needs are demanded. It is not possible to innovate if it is not subjected to a rigorous, exhaustive process of much reflection and debate, which implies a considerable investment of time. At the same time, rapid progress is being made to such an extent that the changes that were useful for one historical moment are no longer so for another. And this is because the needs and demands of civil society have an immediate value, which, probably, in two or three more years, said knowledge is no longer useful since the needs are changing. Consequently, the idea of demanded knowledge is in line with the instrumental, of what is useful immediately. By this, it seems that this idea of the utilitarianism of knowledge has been naturalized at different levels, both in what the subjects-students pursue and in the approaches to innovation and curricular redesign by higher education institutions. If the wording of the graduate profiles jealously guards the imprint of the institution, they also reveal a kind of contract that ensures that the training declared therein will 'do' for the students for their future professional development. The idea is how the university builds a counter-hegemonic proposal from cultural identity, understood as the collective narrative that individuals are capable of building. In this proposal, of an educational nature, cross-cutting aspects such as gender equality, diversity, inclusion and non-discrimination must be present, as well as the deontological principles of profession, social responsibility and citizenship.

Regardless, for the effects of an innovation that exceeds the border conditions posed by instrumental rationality, it is necessary to collect relevant information from the subjects themselves who participate in the training process, in such a way as to carry out a prospective analysis that allows us to glimpse the needs that emerge from the students. It is a question of formulating a more humanistic conception regarding a certain training project: a training guideline convergent with the beliefs of the subjects, with the fields of action and with a redefinition of the learning spaces, as spaces for the development of those intuitions and expectations of the students. The coexistence and articulation of a transversal instance that allows an upright development with the basic demands of a particular discipline can enhance said development.

On the other hand, it must be considered that the concept of innovation implies a change at various levels. Not only is innovation faced with theoretical and disciplinary postulates that produce and promote reductionist and fragmented knowledge, but also, in the formulation of plans and programs, that overcome old practices. In addition, it is vital to innovate in classroom teaching practices and in evaluation practices, especially those that are related to the process. Following this idea, it is necessary to relieve learning over teaching, shifting the focus to the student. Hence, the importance of its autonomy arises. In this sense, the use of active methodologies is important, in which students become participants in their own learning. It is a personal construction, elaborating representations and attribution of meanings from previous experiences and knowledge. Getting involved with your own learning is, therefore, having a willingness to learn, according to the immanent needs of the subjects in question; giving meaning to the training process and, consequently, appropriate knowledge. But this disposition, the significance and the appropriation are not a question of rational order a priori, but rather, it has to do with the emotions that move the subject when he approaches the object of study or when he is in front of a complex phenomenon, to which one wants to access, to know. It is not reason itself that activates emotions, it is emotions that allow rational decisions to be made [9]. Then, thinking

about innovation, spaces or favourable learning environments must be created so that the initial impulse of the students has room from the emotional—that is, that this allows having such a disposition on the part of the subjects, that learning is an experience with meaning and sensitivity, after all, valued from emotion, ‘as a disposition to action’ [10].

5. Education and subject

What are the ontological and epistemological reasons or assumptions that support education today? What are the educational policies that establish the guidelines for country-level education? What is the role played by the subject in higher education? What importance is attributed to the subject as an actor of his own learning? All these imposed questions point to the conditions or limitations that make it difficult for the subject to express himself. That is to say, they are conditions that hinder the needs of the subjects as students.

Faced with this problem, one should consider the issue of the subject’s historicity, in the line of Dilthey, as a historical subject or historical Being, who understands his conditioning and who is capable of facing that complexity of reality and, consequently, of acting against such impositions. It is a permanent update of the phenomena and the situated subjects and of the awareness that one has of it. In this outcome, the subject, as a student, interacts with the university space that governs certain modes of approach to knowledge, or the object of study, by imposition from the normative plane, which stresses, in turn, the subjectivities of the students. Should higher education institutions analyse this problem and the subjects become aware of it, a possibility of change, an alternative look and a position towards their formation as an individual and as a social entity could be glimpsed.

This self-awareness may be the one that can potentially guide the student in understanding their own formative assessment, with awareness of the institutional seal, the identity of the profession, the discipline and the historical moment.

Consequently, the importance lies in the rescue of the subject; in the ability to think by himself, and in the power of the subjectivities that move it. By this, there is an intrinsic wealth to the subject that must be revealed to the world and that must be rescued from training, beyond discipline and profession, from their humanity. In this sense, university education would be understood as a concept that articulates knowledge and awareness, *‘as long as it can consistently empower a person to build their reality, which supposes that the individual has a sense from which and for which to build that reality’* [11].

Rescuing the subject who learns means rescuing subjectivity by generating spaces for creativity and conditions that allow them to develop their own thinking and, in the same way, allow them to interact with others and position themselves in the world as a subject with historical awareness, with the capacity to reconstruct the past for the appropriation of the future [12]. Along the same lines, developed by Zemelman, the interaction with others is expressed in a collective identity that supposes the shared elaboration of a common horizon, which points to the idea of a social transformation that can be potentially built. Indeed, this author points out that *‘the role of education is not to impose value, emancipatory or critical discourse; it is unleashing the need for freedom, the need for emancipation, the need to be builders of one’s own life’* [13].

Continuing with the idea of rescuing immanent human potentialities, Figueroa [14], regarding Kant, points out that *‘...education would be the process through which the*

individual is encouraged to bring out or deploy the possibilities or perfections that his being shelters and seeks... his very and complete constitution as a human being’.

Likewise, the development of the human condition has always been related, historically, to language and this is another aspect to consider: that of consciousness and language, along the lines of Chomsky. This approach distinguishes language in such a range that the subject is capable, through it, of accessing the natural world, of knowing it, of grasping it. And in this sense, language contributes to the awareness of the world that the subject builds, complementing Vygotsky’s approach, which proposes that the subject is not limited to responding to stimuli, but rather acts on them, transforms them and is influenced by the social environment. Then, the subject is capable of acting against coercive forces, moved by the will that is born from emotion.

On the one hand, the concepts of conscience and autonomy of the subject are involved. Autonomy, up against the exogenous intervention that could be translated as an imposed rigid structure. Then, the autonomy of the subject has to do with consciousness, where they must learn to face and live with unpredictability, understanding that there are no longer certainties. The relativization of concepts and worldviews has made the reality even more complex. That is why it is necessary to promote the autonomy of the subject, recovering the subjectivity of the individual, revealing their symbolic languages and valuing the epistemic qualities that underlie those languages.

On the other hand, the autonomy of the subject, as a student, will be understood, for the purposes of this chapter, as the capacity that he potentially possesses to self-regulate his own learning. And this ability to self-regulate has to do with the metacognition process, understood as the awareness that the subject has of their cognitive mechanisms, as declarative knowledge and as procedural regulation [15]. In this regard, *‘Consciousness would imply high levels of control of the activity, the understanding of the elements and how they are related, with which the subjects, through the use of consciousness, can recognize and understand both the results as the processes involved in the actions that they carry out’* [16].

However, this self-regulation of learning must be mediated by the intervention of the teacher, to the extent that it is done systematically in the processes of evaluation and feedback of learning, evidencing the achievements and making the students aware of them. Therefore, there is a shared responsibility, as a teacher-mediator and as a subject that builds new knowledge from their potentialities and subjectivities based on learning environments that consider spaces for their autonomy. In the words of Zemelman [17], *‘the construction of autonomy supposes thinking from the capacity to signify’*, through the use of language. Consequently, the appropriation of concepts and the possibility of manifesting them and acting from one’s subjectivity allows the ability to be a subject in the face of history and circumstances [18].

6. Conclusion

The curricular structure of higher education should be aligned with the development of new knowledge, with the subjects conditioned by history and by the sociocultural context. These relationships converge in a kind of supply and demand that involve a struggle of forces between desire and need. In addition, the higher education institution is faced with a dynamic and complex reality in which the challenges are even greater to the extent that it must decide how to respond to the demands and training needs of a certain community in a certain territory and in a certain historical moment. Likewise, innovation must be carried out in accordance


with the multidimensional nature of reality, and this will be successful providing that is capable of reading said reality and interpreting it in such a way as to be able to capture both theoretical approaches and the subjectivities of individuals, in addition of the operationalization of a certain educational project, understood as the curricular implementation. Finally, we must consider the autonomy of the subject, meaning to rescue the essential values immanent in each subject. We must guide them in their educational journey, giving them tools for a more effective—and at the same time—more autonomous learning with the awareness of it. The rescue of the subject is nothing more than revealing the subjectivities of the individual.

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Perspective Chapter: Reflection from the Field of Medical Education in the COVID-19 Pandemic – New Strategies and Practices in Achieving Needed Competencies for Students

Hussein M. Khaled and Ahmed M. Makhlouf

Abstract

The COVID-19 issue forced necessary changes in medical education that have been demanding and adjusting for different medical colleges, but they also provide a great opportunity for the betterment and possible challenging and useful transformation of medical education. This chapter examined the responses of medical organizations to this pandemic, its merits, and its challenges. It analyzed the potential effects of new strategies' recognition and application on medical education in the post-COVID-19 period. The status of medical education before COVID-19 and the challenges of adopting competencies have been reviewed. The teaching and assessment strategies innovated in the COVID-19 era and reflections from faculty and students were discussed. Over the previous years, the pandemic has questioned concepts about how medical education should be delivered. The COVID-19 pandemic offers the medical education community a unique chance to reorient itself away from outdated standards and practices and toward more societally responsible and accountable standards and practices. All involved in medical education should all work together to prevent situations from “snapping back” to how they have always been because they were accepted practices and would be lost if the pandemic had the potential to disrupt growth and reform.

Keywords: medical education, post covid, competency, new strategies, societally, accountable standards

1. Introduction

Following the COVID-19 pandemic, several questions arose regarding deliberate and major communal reflection on current and upcoming medical education procedures worldwide. The COVID-19 issue forced necessary changes in medical education that have been demanding and adjusting for different medical colleges,

but they also provide a great opportunity for the betterment and possible challenging and useful transformation of medical education. We will examine the potential effects of new strategies' recognition and application on medical education in the post-COVID-19 period. We will analyze how the appreciation and adoption of new approaches may impact medical education in the post-COVID-19 era. Medical education should not be rigid but rather flexible and, via continual reflection, must be able to respond to social requirements. We will review the status of medical education before COVID-19 and the process of transition from the traditional curriculum to a competency-based one and the challenges of adopting competencies by medical students in teaching and assessment. The teaching and assessment strategies innovated in the COVID-19 era and reflections from faculty and students will also be discussed. The chapter will end with lessons learned and recommendations for both practice and research.

2. Medical education before COVID-19

2.1 Historical perspectives

There are three basic eras of medical education. Prior to Flexner (up until 1910), there was the first one that was based on the master-apprentice paradigm. Principles outlined by Abraham Flexner and William Osler served as the basis for medical education during the Flexner era (1910–1970) [1]. According to Flexner, there needs to be more stress on knowledge in medical education because the master-apprentice paradigm did not produce trained physicians [2]. This lengthy time was defined by a curriculum that included clinical clerkships in the clinical phase and biological science courses in the preclinical phase [3]. With the help of this curriculum, medical schools implemented a discipline-based approach with a rising information load and offered all phases of education in classrooms, laboratories, and university hospitals or institutes of tertiary healthcare [4].

The third phase, which began in the early 1980s, focused on raising the standard of medical education. A significant turning point was reached with the 1993 World Summit on Medical Education recommendations (Global Standards). The Edinburgh Declaration said that the goal of medical school is to prepare doctors to be attentive listeners and observers, skilled communicators, and capable clinicians who strive to enhance everyone's health. The idea of society-based education has emerged, according to which kids should be exposed to health issues as early as their first year of school [5]. Even though medical education has made considerable strides in recent years, there is still potential for upgrades and new ideas to better prepare doctors for societal health [6].

2.2 Medical education trends today: shifting educational paradigms

“Despite being continuously identified, most medical schools have done little to correct the severe problems in the manner they educate their students during the previous 60 years,” [7]. Given the flow of medical information and innovative technologies, as well as the rapidly changing needs of future practice, medical school was soon becoming an ineffective and cruel means of teaching students. This was particularly true given the demanding schedule of lectures on foundation sciences followed by equally demanding clinical teaching courses. Medical educators have frequently

expressed their growing worry about the limitations of traditional medical education over the course of several decades [8].

Three significant difficulties (the “unholy trinity”) of concern have been listed in the reports of the General Medical Council, UK (1993), World Federation for Medical Education [9], and Association of American Medical Colleges [10–12]. This concern included lecture-based instruction, a curriculum that is highly discipline-specific, and education that is highly teacher-centered [13]. The preclinical/clinical division has persisted to this day in many locations, with each course component growing independently of the others. Each component of the course was spread out without the other’s moderating influence or a coordinated analysis of the course’s overall objectives [14]. Medical students were primarily engaged in compartmentalized discipline-specific learning because of being immersed in such an educational environment. As a result, they frequently are deficient in the capability to integrate, assess, and utilize knowledge from various specialties to solve common health problems. Abrahamson (1996), in his authoritative book “Diseases of the Curriculum,” has already thoroughly documented these issues related to the creation and delivery of the medical curriculum. The fundamental criticism of teacher-centered education is that it fosters a culture of authority reliance where teachers determine what, how, and when pupils should learn things. Skills for self-directed learning include the vital requirement for continuous continued self-education, so important to medical practice, is therefore never cultivated and developed in students, and as a result, it is not ingrained in student mindsets and learning attitudes [11].

We can be sure that the physicians of the future will be applying the know-how competencies and utilizing talents that are now unforeseeable given the rate at which the horizons of medical science and technology development. But some elements of modern medicine’s art and science are crucial to its practice and undoubtedly will endure. For the rest, our most excellent bet is to cultivate doctors who can adapt to change, have brains open to new ideas and innovations, and have learning mindsets that encourage continuing education throughout their professional careers [14].

A concern has been being stated that a significant shift in the direction of medical education to make it more relevant to societal requirements is required, inescapable, and urgent [15], with the retention of some of the contemporary art and science of medicine that is important to its practice and will likely endure. Global reforms in medical education typically entail the following paradigm shifts: to interdisciplinary integrated curricula (designed to maximize horizontal and vertical integration of the medical course); to problem-based (or assignment-based) educational approaches that inspire active-interactive learning in small groups; and to more student-centered (learner-centered) and self-directed learning. The SPICES model for curriculum planning also includes a shift from a hospital-based to a community-based, one-size-fits-all obligatory course program to contributions of electives to further reassure self-directed learning, and from an apprenticeship to a more systematic approach to curriculum planning and scheduling. These modifications are in addition to the paradigm shift toward a student-centered, problem-based, integrated curriculum [16].

Significantly reducing the “burden of factual information imposed on students,” enhancing “learning through curiosity, the exploration of knowledge, and the critical evaluation of evidence,” and “ensuring a capacity for critical evaluation of evidence” are just a few of the clear-cut recommendations made by the Education Committee of the General Medical Council of the United Kingdom (1993). These recommendations also included teaching students “attitudes of thought and behavior that befit a doctor... with traits acceptable to his/her future duties to patients, coworkers, and

society in general” and emphasizing “communication skills and the other basics of basic clinical procedure” throughout the course. •The curriculum emphasizes “public health medicine... embracing health,” adjusting clinical teaching “to changing patterns in health care and... provide the experience of primary care and community medical services as well as hospital-based services,” which includes “health promotion and illness prevention, assessment and targeting of population needs, and awareness of environmental and social factors in disease.” [11, 17].

Education in medicine has the potential to be revolutionary [18]. Since delivering a product crucial to individual and societal well-being is the goal of medical education, the educational process itself should not be viewed as a finished product but rather as one that is continually responsive to shifting societal needs [19, 20]. This is because the social community itself is continuously moving under a diversity of demands in knowledge, technology, finances, and societal conditions [21].

2.3 Current trends in medical education: challenges and opportunities

The capacity to design educational activities for the classroom and clinic that maximize learning is necessary for teaching [22]. The teaching abilities of medical professors are, of course, essential to the success of curricular revisions. For our instructors to implement excellent teaching methods that will maximize the educational results of student learning, we must make sure that their teaching skills are constantly improved [23]. The adoption of curriculum changes in medical education will have a substantial impact on the construction and provision of the curriculum, learner assessment, teaching and learning strategies, and competencies achieved by graduates. Given that educators are answerable to all parties involved, it is crucial for medical educators to reevaluate their positions to guarantee that the standards of medical education they deliver can keep up with the escalating needs of medical practice in the new millennium. An academic who merely gives data is not a teacher. A teacher is someone who encourages learning, which leads to lifelong changes in behavior and mental processes [24].

To improve their knowledge of learning theories and the educational process, medical educators must examine their own attitudes, actions, perceptions, and assumptions regarding teaching and learning. It is no longer acceptable to assume that a teacher is competent and effective just based on their subject-matter (content) knowledge. Teachers need to sincerely consider whether they are willing to adjust their beliefs and behaviors to conform to the changing paradigms in education. Teachers must shift from playing the position of the “sage on the stage” to that of the “guide by the side,” facilitating and fostering the thought and learning processes [25]. To enable their students to take greater initiative and responsibility for managing their own learning as well as their own academic and personal growth, teachers must establish partnerships with their students to foster a sense of community and bonding in the classroom. Teachers will need to research the best ways to use technology to improve the learning environment for kids in the digital age. Medical students, patients, and the community will all benefit from the education provided by medical teachers who can effectively blend their subject-matter expertise with sound pedagogical principles. Teachers must therefore do a good job of preparing today’s medical students to become the capable, compassionate physicians of tomorrow.

The future of medical education is uncertain. Although the undergraduate, graduate, and continuing education levels each have their own distinctive characteristics, the similarities among the three levels are particularly telling and serve

as the foundation for making well-informed decisions about the future of medical education. Some of the internal and external difficulties that undergraduate medical education faces are described in [26]. Internal obstacles include a staff whose research is primarily concentrated at the molecular or sub-molecular level, implications of inpatient vs. outpatient teaching, and implications of an emphasis on sickness to the relative exclusion of behavior. The exponential expansion of information-related technological (“disruptive”) developments and societal changes are examples of external forces. In order to overcome these obstacles, the institution must take bold leadership with a view toward the time following 2020, when current matriculants will start their careers. The Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS) developed a set of competencies in 1999 in response to criticism of traditional curricula from the public. Competencies are observable qualities that articulate the knowledge understanding, psychomotor skills and beliefs, and attitudes required for graduates to be able to provide healthcare for individuals and societies. These learning outcomes are used by competency-based medical education (CBME) to structure medical curricula and evaluate students’ progress in acquiring these competencies [26, 27].

Competency-based medical education emphasizes skills gained during that time rather than the amount of time spent learning the content. Contrary to the traditional medical curriculum, CBME adopts the Dreyfus model of skill development, which consists of a number of milestones for learners to pass through, starting with novice and ending with master. Every learner will progress at a different rate and may be at a different stage of mastery for various skills. As a result, the precise measurement of competencies through continuous evaluation in CBME acts as a forewarning mechanism that gives feedback to students and enhanced the capability of residency training mentors to identify performing deficiencies in trainees and programs in time for them to address these practice gaps. Clear descriptions of the competencies and the milestones for each competency, precise assessments of learners, and the procedures for evaluating those competencies, and the resources for giving learners feedback to support learners’ progression are necessary for CBME to be successful [27, 28]. In CBME, the assessment of competency serves the dual purpose of identifying what has been learnt as well as what is necessary to pass the following milestone stage. These tests are meant to be formative rather than summative, which means that their purpose is to provide informational feedback to direct a learner’s development. Summative evaluations, on the other hand, are meant to assess current proficiency levels in order to guide grade assignments, rank advancement, or scoring. Miller’s pyramid represents various levels of assessment in which lower-level talents lay the groundwork for increasingly difficult tasks [29]. When examining the obstacles to the implementation of CBME and how to overcome them in 2022, Jayson M. Stoffman focused on three major themes: the value of stakeholder and administration engagement, the significance of supervisors and resident training for the specific duties and necessities of CBME, and the application of the necessary educational and technological strategies for this novel training model [30, 31].

2.4 The world before COVID-19: CBME prior to the pandemic

A competent person is one who “possesses the required abilities in all domains in a specific situation at a defined stage of medical education or practice,” according to Michael S. Ryan et al. (29). The variety of abilities across different areas or dimensions of physician performance in a specific environment, competence is multidimensional

and dynamic, is how competence is defined. It alters with passing years, experience, and situations. Historically, “time-in-seat” has been used as a subpar but workable and practical proxy to assess trainee competence. Contrarily, CBME places more obvious stress on a learner’s capabilities as the result of their training. To describe how CBME is implemented effectively, consensus recommendations on the concept of CBME, efficient techniques for assessment, essential elements to build CBME courses, and the function of instruction in promoting physician development are needed [32].

The terminology used to discuss curriculum and assessment procedures is distinct. This includes words like “competencies,” “milestones,” and “entrustable professional activities (EPAs)” which are similar but distinct. While milestones represent the progressive stages that doctors advance through within a specific competency in description terms, competencies illustrate the skills and qualities of physicians. EPAs adopt a slightly different perspective; they discuss the job done by doctors. Eight CBME frameworks have been quickly embraced and adopted, but there have still been several noteworthy difficulties. A CBME model is for assessment calls for a variety of techniques, assessors, rater selection and training, psychometrics, and group-based decision-making. The deficiency of funding for medical education and research, the dependance on expectable numbers of residents and fellows to encounter patient care needs, controlling supplies for the profession, and complacency on the part of educational leaders and healthcare systems are additional problems along with assessment-related challenges. While there has been significant progress toward realizing CBME in the months and years leading up to COVID-19, much more work is still needed [33].

3. Consequence of COVID-19 on medical education: what happened and what are the reflections

The COVID-19 outbreak has resulted in the tragic loss of human life, enormous economic effects, and widespread societal unrest. The global response, changes, and changes prompted by the COVID-19 pandemic will undoubtedly serve as a milestone of the twenty-first century. Many nations instituted harsh lockdowns, effectively preventing everyday human interaction, in order to slow the virus’ spread. While no sector remained untouched, the global educational system saw well over a billion children barred from traditional classroom settings [34]. The epidemic has brought about and hastened new development and established a necessary change culture in all facets of education. Accepted and widely used methodology in teaching, learning, and assessment have been called into question, and despite their longevity and perceived significance, they have been replaced by cutting-edge online teaching and assessment techniques [35].

The shift to a range of online learning modalities from largely in-person lectures, tutorials, skill building, and clinical experiences was highlighted as a significant transition in medical education. E-learning, which is defined as the delivery of educational experiences via the internet, has been examined as a useful teaching method for the medical field for more than 20 years [36].

The transition to online learning presented significant challenges for medical schools to guarantee an effective learning setting for medical students by accentuating tech-based instruction, counseling, inspiring, and encouraging feedback from medical students as well as supporting medical instructors in adjusting to the new environment [37, 38]. Medical students are often able to acquire online distance

education (ODE) through one of two main systems: asynchronous (recorded) distance education (such as podcasting and recorded lectures) or synchronous (live) distance learning (such as video conferences and virtual classrooms) [39]. One of the new prototypes is the “flipped classroom.” It is a hybrid learning approach that combines an asynchronous component that enables medical students more scheduling flexibility with a synchronous component that facilitates interaction between medical students and faculty members [11, 40].

Exams for medical students were another aspect of medical education influenced by the COVID-19 epidemic [41]. In various countries, clinical and written tests have been canceled, postponed, delayed, or replaced with online exams or other evaluation methodologies [41]. Universities and educators had to respond to the new reality of the pandemic, which sparked a debate between open book examinations (OBEs) and closed book exams (CBEs) (CBEs). Due to their complementing advantages, OBEs and CBEs can both share a blended assessment system. This pandemic’s changes present a crucial chance to test different approaches to medical education and assessment [42].

More significant was the change affecting CBME undergraduate training in medicine, in a way that implies support for the CBME model [32]. The LCME specifically emphasized that the main factor determining a learner’s preparedness for advancement was the learner’s fulfillment of programming objectives [43]. Medical schools were able to concentrate on achieving competency but even despite this, the LCME has continued to support objectives rather than rotating duties in its support of curricula and evaluation frameworks that are outcomes-based. The requirement to convert from conventional face-to-face education to alternative modalities like virtual simulation or telemedicine is another issue that is relevant to CBME. These pandemic-inspired instructional innovations may ultimately turn out to be advantageous in the long run. For instance, there is a large amount of academic research supporting the idea that learners might benefit from performing patient care tasks in a simulated venue before delivering real patient care. This has been demonstrated in healthcare practice, using task trainers that follow procedures and simulation-based training for high-risk circumstances like codes. This raises the issue of whether students of medicine and other health professions should first prove their proficiency in a virtual setting before moving on to actual practice. The impact on testing and grading is one indirect effect of CBME models. Anecdotally, several schools reported that when National Board of Medical Examiners subject exams were given prior to the beginning of the clinical immersion phase, students’ performance on them was comparable or, in some cases, even improved. Additionally, because there was little time for observation, medical schools had to deal with the problem of grading. This led to the conversion of many to a pass/fail scoring system for advancement. Collectively, these difficulties caused individuals involved in medical education to re-evaluate advancement ideology and evaluation grading [44].

Milestones 2.0, the new milestones that the ACGME first announced in 2018 and have continued to release over the previous 4 years, are what first signaled the advancement of CBME in GME. Traditional training methodologies that mainly relied on progress occurring based on amounts of time spent and number of cases/clinical situations were questioned because of COVID-19. The American Board of Medical Specialties and the ACGME both responded by issuing guidelines that emphasized the importance of competency attainment by laying out the minimal standards for competency-based assessments necessary to make “defensible, high-stakes entrustment” decisions for specific learners [45]. Clinical competency committees (CCCs) were urged to assess each learner’s current competence and work with them to develop a

personalized learning plan to fill in any gaps [46]. The COVID-19 disruptions provided brand-new opportunities for in-person evaluation of residents and fellows. During the pandemic, interprofessional and interdisciplinary teamwork grew, creating novel and more regular opportunities for multisource assessment and feedback (i.e., 360-degree evaluation) [47]. Additionally, fresh windows of observation, like telehealth, opened up. Finally, out of need, fellows and residents were given more authority with supervision titrated to entrust ability for particular duties, including letting fellows temporarily assume the position of attending in their primary field of study [48]. The pandemic increased the CCC's significance for programmatic assessment as well. The crucial function of the CCC was fortunately supported by a body of research on group dynamics and the usage of CCCs in GME, which was formalized in the summer of 2020 with the publication of the third edition of the Clinical Competency Committee Guidebook. The complete impact of the adjustments to the assessment inputs used by the CCC to make developmental judgments is not yet understood [49].

The UME-to-GME transition is the other significant pandemic-related disturbance. While some specializations offered “boot camps,” in most cases, there was no systematic “warm” handoff from UME to GME. Both the class of 2020 and, possibly more so, the class of 2021 encountered difficulties because of this gap. By the time the pandemic-related interruptions occurred in 2020, graduating students had finished most of their training; many students in the class of 2021, however, witnessed a decrease in clinical experiences, notably in electives. The American Association of Colleges of Osteopathic Medicine, AAMC, ACGME, and ECFMG developed a toolkit in response to these significant concerns of the 2021 transition to provide support and supplies for learners and educational program managers [17].

3.1 Expected developments on medical educations

The forced changes brought on by the pandemic crisis were difficult, but they also represented a huge opportunity to pause and consider the area of medical education's future in depth and reflection [33]. The purpose of medical education, the competencies that must be attained, the methods of delivery, and the characteristics of students and graduates are the four main subjects that merit reflection.

3.1.1 The purpose of medical education

Within the confines of a controlled healthcare workforce equation, the healthcare system and medical education programs are intricately linked and frequently reliant on patient care revenues. Because clinical services account for a sizable percentage of an academic center's revenue in many countries, its teaching emphasis are likely to be geared toward cost-effective preventative care for society rather than specialized expert treatment for individuals who can provide it in tertiary hospitals [50]. It is time to question our reliance on this paradigm of educational and healthcare delivery given the public health constraints and inequity issues it has brought to light and to consider alternate futures. Academic institutions and the healthcare industry should work together to reimagine the healthcare system such that it rewards public health and preventative care rather than focusing solely on diagnosing and treating terminal illnesses. For this health-based strategy to be promoted, community involvement is essential. The widespread adoption of telemedicine, which was prompted by social pressure to distance patients from their doctors, presents a chance to enhance preventative care, patient well-being, and health at a reduced societal net cost [51, 52].

Patient-physician communication could increase if doctor visits are quicker and less time-consuming for patients. This would free up more time for discussion of common behaviorally modifiable preventive health issues like diabetes, hypertension, and weight management [53]. All medical students in today's medical education must complete years of general training before concentrating on a specialization. Many students may feel the necessity to select a specialty based on higher fee and the related business system where disease creates cash to offset the cost of medical training. The maintained dependency between healthcare business delivery sectors and medical education should be disrupted to address this systemic issue. This would promote progress toward a more equitable system of medical education and service delivery.

3.1.2 The competencies to be attained

The pandemic has revealed that many medical schools are incapable of producing clinicians who can respond to areas at increased risk of negative effects. The substance of medical curriculum must be radically altered to meet societal demands and fill the gap revealed by recent occurrences. Three aspects that need be addressed for this move toward community and public health are disaster management, social accountability and complexity, and the ability to handle uncertainty through a range of paradigms. The pandemic demonstrates that the elegance of each specialization restricts the fundamental and universal functions and scope of medicine and is driven more by self-interest than by societal demands and excellent quality [54]. Although skilled in their fields, doctors find it difficult to act as a generalist during an epidemic. The irony of specialization is that it may leave the public's basic and general needs unmet. It would seem essential for medical schools to collaborate with local organizations and learn how they might support projects and improvement plans. Medical colleges must make sure that their graduates have the professional and social skills required to be accountable to the populations with the highest requirements and possess the resources needed to minimize inequalities in advance of pandemics or other catastrophic situations [55]. The epidemic has served as a reminder of the nature of uncertainty in the practice of medicine and the need for a variety of paradigms. In addition to pharmacological and extirpative methods, medical students' toolkits should be expanded by investigating paradigms that increase their ability to adapt in uncertain situations with strategies that promote holistic wellness and help navigate uncertainty [56].

3.1.3 The approach

To modify the way medical education is given examining how teachers instruct and how successful the existing delivery mechanism is crucial. Community-based learning and open-lens medical education are two important lessons that can be drawn from the outbreak. Instead of just denoting the transfer of the curriculum to a virtual environment, the recent move to online learning in preclinical medical education opens the door to open-lens medical education [57]. There are essential medical principles that all medical students should understand, as a result, preclinical medical education should move toward "open" learning that is shared outside the bounds of specific medical schools. Institutional collaboration in order to curate new information and provide an organized, standardized, and shared curriculum of fundamental medical knowledge for all medical schools may result in the emergence of a new paradigm toward a lean medical education structure for preclinical medical education, including some of its interprofessional components. This cutting-edge medical

education strategy would increase accessibility for all students and demonopolize preclinical instruction without respect for socioeconomic class [58].

3.1.4 Characteristics of undergraduates and graduates

If social accountability is a goal that should be pursued in medical education, then the method of instruction should be in line with the context of the goal. Medical schools must prepare doctors for their future environments, including those that go beyond the confines of the lecture hall and the clinic. It is interesting to note that there is a trend to question the conventional idea of “learner-only” student activity, which is motivated by the necessity to deal with the current pandemic. The Medical Schools Council in the UK has published extremely precise guidelines outlining the function of medical students who volunteer at work [59].

The epidemic is making it more difficult for students to distinguish between practicing to learn and learning to practice in medical schooling. Medical educators should be able to manage this conflict in the future both pedagogically and socially. The practice of medicine is governed by a social compact that calls for both scientific expertise and professional ethics. Future doctors should be chosen by medical schools if they are ready to accept the professional obligations required in underserved and varied populations, especially in times of emergency. Choosing a different labor force with strong internal enthusiasm rather than an external drive, a highly developed idea of social accountability rather than personally engaged attainment, and the ability to comprehend and communicate with diverse communities will help achieve this. The qualities that should be prioritized for such a workforce are probably different from those from the past [60].

3.1.5 Blind areas in competency-based medical education that COVID-19 has brought to light

The pandemic amply illustrated the need for ongoing assessment development. We must move more quickly to measure skills like professionalism, interdisciplinary coordination, quality improvement and patient safety, care coordination, and cost sensitivity. In many GME programs, these competencies are still not frequently evaluated, let alone taught [61]. We must then reevaluate end-of-rotation testing. The future of medical education will better support learner growth and evaluate the caliber of our training programs by combining assessment for learning and coaching technologies. At the same time, we must make investments in reliable systems for training faculty. Progress testing, which evaluates developmental progression across training years, has been introduced by medical educators; this may be valuable [62]. To facilitate a more organized, effective transition, work is needed to achieve a more significant alignment of evaluation methods between UME and GME. We lack a true continuum of medical education, and the UME, GME, and continuing medical education all operate under different accrediting bodies, with various standards and methods for implementation and competency assessment. These discrepancies are the root of the detrimental effects on patient care to address these issues, and creative systems are required. Both intern boot camps and capstone courses for medical schools have proved effective. Others have strengthened feedforward operations across and within settings, or they have experimented “warm handoffs” between UME and GME leaders [40]. The integration of coaching programs along the continuum from UME to GME may be one of the other models [63].

Following our experience with the COVID-19 pandemic and the tensions contained within the questions, Michael S. Ryan et al. (REF) suggested some significant

CBME-related questions that stay for the medical education group and suggested recommendations to advance CBME [63]. Is broad-based training best or specialty-centered training better? Although basic and comprehensive knowledge may be applicable throughout contexts and specialties, it might not be as useful in the course of daily work. How do we bargain over trainees' service and learning needs is the second query? Dedication to meeting customer demands validates the trainee's worth and offers a real apprenticeship experience with increasing responsibilities. However, relying too heavily on the trainee to execute tasks they are underqualified to do could compromise patient care and reduce other learning chances for a well-rounded education. Is using rotating models to demonstrate proficiency effective? is the third query [64].

While longitudinal approaches encourage earned trainee autonomy and the development of relationships between trainee, patient, and supervisor, rotational (i.e., block) rotations give scheduling convenience and the chance for exposure to diverse professions. Can the student drive their own learning? is the fourth query. Learner-centered curriculum is better for developing skills and knowledge, but they are challenging to standardize and use. Is it possible to advance beyond time-based advancement? is a different query. A competency-based model frequently views time variability as essential, but in actuality, incorporating it may be difficult. What are our financial limits for promoting CBME? Although some may counter that there has already been considerable investment in a medical education system that has not produced the required outcomes, CBME is an expensive proposition. To obtain desired results, it is necessary to think about whether existing resources should be relocated and better aligned. In response to these queries, several suggestions have been made. General physician competencies should be covered in training by all levels of medical educators. Leadership in the health systems should offer just-in-time training for competencies and entrustable professional tasks required in emergency settings. We should work to strike a balance between classroom instruction and hands-on experience (sometimes known as "service"). The patient care responsibilities of learners should be such that they advance their learning and enable involvement with different educational and multimodal learning methodologies. Leaders in medical education should look for chances to expand and further analyze longitudinal rotations. In order to assist the development of competence, coaching programs should be designed throughout the educational continuum. They provide a chance to embrace learner centeredness. Medical education should make use of individualized, trainee-led learning programs as a common practice. Promotion at your current position (with improved and progressed responsibility) presents a chance to advance in a temporally varied manner [11, 32, 35, 64].

Educational leaders must engage with accreditors, licensing authorities, and credentialing organizations to eliminate structural barriers to a time-variable program of growth across the continuum and stimulate progress. Additional funding is undoubtedly required to support programs for faculty/learner development, assessment, and curriculum creation in order to achieve CBME. The most effective use of money should be prioritized in medical education. Educational leaders should work together to exchange novel ideas and successful strategies [11, 32, 35, 64].

4. Situation analysis: egypt as an example

4.1 Recent efforts of reform of medical education in Egypt

From early 2015, the national Committee of the medical studies in the Supreme Council of Egyptian Universities (SCU) has started a plan for medical education

development at its three levels: undergraduate, medical internship, and postgraduate phases. The main target is to achieve a shift to competency-based education and training. Egyptian reform efforts for undergraduate medical education are as follows:

Several national committees for reform of undergraduate medical education program representing national and international medical education experts, deans of medical schools, members from supreme council of Egyptian university hospitals, ministry of health leaders, medical syndicate leaders, and other stakeholders have been assigned for this task and started their work June 2016 till now. Most of the medical schools in Egypt delivered a traditional Flexnerian undergraduate medical education program for a long period of time. The notion of reforming the conventional program was seriously considered in response to major circumstantial changes and the WFME 2015 recommendations.

A comprehensive context evaluation was conducted to explore the challenges of the traditional program from the stakeholders' perspective, evaluating the quality of the traditional program in graduates' perceptions, and assessing the educational environment from the students' perspectives using focus group discussions with the deans and vice deans of all medical schools, as well as a questionnaire for a representative sample of students. A road plan and medical education methods applicable to the country in changing situations have been accepted, such that medical education is innovative and capable of preparing students to function in a changing medical science setting and to implement quick answers and offer a framework for a new curriculum to be adopted by all medical schools. This included incorporating newer teaching elements into the undergraduate course, such as the introduction of a foundation course after admission to effectively prepare a student to study medicine; facilitation of horizontal, vertical, and spiral integration between different disciplines; advocating for early clinical exposure beginning in the first year (viz. case scenarios for classroom discussion/case-based learning); and encouraging the student doctor method of clinical comprehensive training and learning.

An awareness campaign started in first trimester of the academic year 2016/2017. All governmental, Al-Azhar, and private medical schools all over Egypt at that time were included. The awareness package was delivered to the stallholders in each school including students and recent graduates, and their reflection was reported through focus group discussions. A Google form web-based questionnaire was disseminated to all medical schools to get their feedback regarding the challenges of implementation of the new program. A final collective report was prepared for all visits and presented to SCU. The report emphasized the needs for reform and adoption of new curriculum including active learning and competency-based assessment strategies and elaborated the medical schools' recommendations regarding its implementation.

A series of meetings and focus group discussions were made between reform committees, the head of the medical studies committee, and the secretary general of the SCU and the relevant ministers to propose the frame work for the reform and the required changes in the laws and bylaws so that the period of undergraduate studies for the medical school in Egypt should be 5-year integrated program using credit points or hours followed by 2 foundation years and a license exam before starting the medical profession. The supreme council of universities approved that the new program should be implemented by all medical schools at the academic year 2018/2019.

Two documents stating a framework for preparing the bylaws and curriculum maps were prepared by and issued to all schools from the SCU. There was a continuous communication with the curriculum committees in each medical school during its

work on bylaws and map to be ready for the approval of the new reform. A workshop was conducted at January 2018 by the SCU and involved all high education ministry leaders and academic leaders of each medical school to present and discuss each curriculum map. Before the start of the academic year 2018/2019, all medical school's bylaws were approved by the high authority.

A technical support has been provided to all medical schools in their process of reform by helping them in designing their own curriculum according to the standards. A series of workshops under the title of excellence in medical education were conducted by Medical Military Academy in collaboration with EKB, where international medical education experts were invited to raise the capabilities of the curriculum committee's members of all medical schools regarding the integrated program. These workshops were considered a TOT for continuing training of all involved faculty in all schools. Each medical school started its own faculty capacity building with the support of RUMP members. Upon RUMP recommendation, this is a continuous process targeting to train 90% staff members.

In September 2018, the curriculum model was approved. This featured horizontal and vertical content integration, new examination processes that replaced departmental oral tests with integrated examinations, the addition of an orientation module, a greater clinical orientation beginning in the first semester, and additional optional components. The new block and vertical line components (mainly organ/function modules lasting 3–6 weeks supplemented with semester-vertical courses) were introduced in the curriculum. A curriculum plan detailed the sequencing and duration of each component, as well as the number of credits. Following an application procedure, each medical school picked coordinators for all modules of the new curriculum. These coordinators were in charge of assembling an interdisciplinary planning committee of at least six individuals, comprising academics from both nonclinical and clinical topics. These planning teams were tasked with determining the content of their module as well as the relevant learning strategies.

A thorough, multi-component monitoring system for the entire program has been devised. The framework envisions the program's quality as consisting of four major components: curriculum and resources; personnel and teaching; student experience; and management support. The adopted audit's key principles include the belief that both student and staff experiences provide valuable information; that evaluation of teaching, learning, and assessment methods is required; that action after evaluation is critical (closing the loop); that strategies and processes must be continuous rather than episodic; and that evaluation should be used to recognize, report on, and reward excellence in teaching. Teachers, course coordinators, and administrators were involved in the evaluation and improvement activities. Three monitoring visits were conducted; twice in the first year of implementation/once per semester and the last one was conducted within the first term of the academic year 2020/2021. The later visit was laying stress on the period following the evolving COVID-19 pandemic. Because of the COVID-19 lockdown, auditing was hanged last academic year. In each auditing visit, two assigned members have to visit the school. An external auditing checklist is fulfilled by the assigned audit members and included in a final report. Expert in the field may share in the auditing visit whenever needed. Also, a questionnaire link is sent to students and staff members in each medical school to get their feedback regarding the proper implementation of the new program. Analysis of results and recommendations are documented, and a final collective report is presented to medical sector committee – SCU. Each school report is endorsed by the Medical Sector Committee of SCU and sent to the school dean for corrective action plan.

More than 1 year ago, several actions have been done to prepare for the new Egyptian National Compulsory Medical Internship 2-year program through joint cooperation between Egyptian supreme council of universities (SUC)/committee of medical studies, Compulsory Egyptian Medical Training Authority (CEMTA), and Egyptian supreme council of university hospitals. Representatives from these organizations finally issued a specification of the program and provide guide to implementation. The program is an essential requirement for being licensed as medical practitioner in Egypt. The program is competency based using entrustable professional activities, blended learning, and assessment mainly workplace-based. Roles and expectations of interns have been illustrated, and processes and tools are to support the implementation. It aims to facilitate interns, their educators and supervisors, and directors of the program in each school in building valuable workplace learning, teaching, and assessment experiences in 2 years. The program is specified to support safe, effective patient care and promote the establishment of a culture of lifelong learning and reflection among interns. A training program is currently in process to qualify the trainers from all accredited training hospitals to ensure proper implementation.

Postgraduate Medical Education in Egypt is defined as the phase in which doctors train under supervision toward independent practice after completion of their basic medical qualification and internship compulsory training years. It comprises professional training, specialist and subspecialist training, and other formalized training programs. Upon completion of a formal postgraduate training program, a degree is usually granted. However, there were variations in the programs and degrees given in this phase essentially between universities and ministry of health. There were no standards to specify the broad components in the structure, process, and outcome of postgraduate medical education. Two major steps have been done recently to reform postgraduate medical education in Egypt. The first is a national law setting the establishment of the Egyptian health council that governs all postgraduate and continuing medical education for all graduates of health schools including medical ones. The second step is to establish standards for the creation and design of postgraduate medical (board) curriculum. These requirements demand that curricula specify high-level generic, shared, and specialty-specific outcomes, identify common areas of training, and place a higher emphasis on the generic professional competencies shared by all doctors. Each clinical specialty committee must explain and provide evidence to demonstrate how these criteria and requirements were handled in the design and implementation of the proposed curriculum. A curriculum must cover several interdependent variables in order to be useful, including clinical safety, anticipated levels of performance, standard maintenance, patient expectations, equity and diversity needs, strategic workforce challenges, and operational and professional viewpoints.

4.2 The reaction to COVID-19 in Egypt

Through a survey and focus group discussion, a 2020 study in Egypt investigated how medical schools in Egypt responded to the COVID-19 epidemic in terms of teaching, learning, and evaluation for undergraduate students [64]. Increased understanding and utilization of currently accessible technology in medical education has been one of the most important responses to the epidemic. This study found that universities' ability to respond to COVID-19 effects was fairly acceptable, with an emphasis on six imperatives: establishing multilevel contingency plans, leadership support, staff preparedness, infrastructure, technology, and multidisciplinary collaboration. Collaboration across disciplines is to create or carry out tasks. Difficulties

were evident in schools that had never utilized an LMS previously and had no prior experience. But finally, since they were obligated to, the majority of the personnel and all students were participating. Furthermore, about half of the survey participants (50%, 39/78) indicated that faculty engagement in various educational activities was appropriate. Academic professors and tutors play an important role in guiding and assisting with this shift. However, it has been acknowledged that changes and advancements in medical education place additional strain on faculty [64].

4.3 Challenges and opportunities

Some points cannot be dismissed as challenges that must be addressed. Staff capacity building needs additional attention now that the environment is set for innovation and validation of the use of online learning that arose during the epidemic. Communication between decision-makers, staff, and students has been highlighted as a critical success element for the Medical Education transformation [65, 66]. When making decisions that impact the learning process, national decision-makers must recognize and consider the unique nature of Medical Educational Institutes. They must also consult medical school management and major national entities in the judgments they make. "COVID-19 is an eye-opening experience," which assisted us in identifying our areas of strength and weakness. Despite the time constraints, it enabled us to employ our full potential to develop new teaching abilities, produce online learning materials, and sustain the learning process. However, our capabilities were not completely utilized since we lost contact with students and decision-makers, resulting in a different unique circumstance in each institute. COVID-19 was such a beneficial experience that there would have been no fundamental shift in medical education without it. Employees would not expand their talents or apply what they were learning. Some flaws would be concealed [67].

5. The way forward: summary and recommendations

COVID-19 aided to spark the fire for medical education reform in Egypt and throughout the world. Online learning has been integrated into the curriculum in such a way that it may account for 20–30% of the curriculum, particularly in the early years of medical education. It is critical to encourage engagement in online learning and to offer students with the information, skills, and attitude required for successful online learning. This might help pupils prepare for comparable scenarios or future emergencies. On the staff side, significant faculty development through training on various kinds of online and electronic assessment, such as online MCQs and open book examinations, was strongly recommended [68]. Furthermore, clinical clerkship evaluation modes such as virtual OSCE, virtual VIVA, and virtual patients were used. To create rapport and trust, open genuine and regular lines of communication are needed between students, faculty, and decision-makers. Mentorship would aid in the development of these channels. Increased efforts should be made to change student attitudes. However, the number of students in each faculty may be a significant difficulty that must be addressed in the future. Finally, national entities should create a road map/action plan that includes student union bodies. This route plan should be shared with higher-ups and decision-makers. More focus should be made on leveraging national governmental agencies to help professors and curriculum. This can be accomplished by formalizing their function in medical education. Medical Education departments and units must develop a rapid reaction plan for future management

of unforeseen incidents, which must include a viable communication strategy that begins with a stakeholder analysis [69, 70]. The supreme council of universities took action through its medical sector to support the teaching and training of primary healthcare and family medicine in the undergraduate curriculum and, more importantly, in the mandatory foundation training for all medical school graduates.

6. Summary and conclusion

Medicine is always a “child of her age” in terms of social, scientific, and service constructs. The epidemic has called into question how medical education should be given in prior years. Everyone participating in medical education has a responsibility to take use of this opportunity to promote medicine and its worth to society while also engaging in self-reflection that has the potential to transform lives. The COVID-19 epidemic provides a rare opportunity for the medical education sector to reposition itself away from obsolete standards and procedures and toward more societally responsible and accountable standards and practices. We should all work together to prevent situations from “snapping back” to how they have always been because they were accepted practices and would be lost if the pandemic had the potential to disrupt growth and reform.

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Section 3

Embracing Online Learning
as a Response to COVID

Reconceptualizing Curriculum Design and the Scholarship of Teaching and Learning in an ODeL Institution: The Introduction of Technology-Enhanced Learning

Malebo Matlala

Abstract

The introduction of technology-enhanced learning has made higher education more accessible, especially in Africa, where the cost of higher education on its own can be a barrier to education. Technology introduced virtual classrooms and has allowed students from remote areas, access to education. Although the use of technology-enhanced learning in South African Higher Education was significantly low, the imposed lockdown as a result of Covid-19 catapulted the use of technology to unprecedented heights in a very short space of time. This chapter studies the impact of Covid-19 on teaching and learning in Higher education as presented in one of Africa's largest ODeL institutions. The results of the study show that the introduction of remote online assessments presented ideal opportunities for academic dishonesty among students and that in order to protect the integrity of our qualifications, the curriculum should be designed in a manner that encourages active participation from students. This includes active learning through the integration of discussion forums, peer reviews, and group activities, and by taking cognizance of the student's existing knowledge through reflective learning and their application of newly acquired knowledge.

Keywords: technology enhanced learning, open distance and electronic learning, curriculum design, scholarship of teaching and learning, comprehensive open distance and electronic learning

1. Introduction

Formerly referred to as distance education/correspondence education, Open Distance learning (ODL) has been around for ages, principally desired by the working-class, who were balancing work-studies and family life. This, however, has changed over the years owing to the introduction of technology. The profile of students today differs from that of students who were enrolled in distance education over 20 years ago. Open Distance Learning (ODL) combines distance education with

open learning; it refers not only to access to education that is limited to distance/geographical location between the teacher and the learner but also to access that is open to everyone, irrespective of their race, age, gender, physical abilities/disabilities, as well as social or financial status. Traditionally, this kind of learning environment was preferred by the working-class, more mature students with families; however, in recent years, the student profile has changed, especially in South Africa, demonstrating an increase in the number of unemployed, straight-out-of-high-school scholars enrolling for the first time in higher education. Although costly for the student, the introduction of technology-based teaching and learning methods has also made distance learning more desirable to the younger techno-savvy cohort of students. In addition, technology-enhanced teaching and learning practices have also addressed the biggest obstacle to distance education-communication.

The success of education lies in effective communication, and in distance education, communication was traditionally non-existent, (students were limited to individually interacting with their study material in their remote locations). According to Berge [1], the most important barriers to communication in distance education include issues such as cognitive distance/conceptual understanding, language/cultural/social barriers, and aspects of emotional, psychological, and pedagogical distance as well as spatial and temporal distance. The introduction of technology-enhanced teaching and learning can therefore effectively eliminate temporal and physical/spatial barriers to communication between instructors and students, as well as between and among the students themselves. Issues of cognitive, cultural, emotional, linguistic, pedagogical, as well as psychological and social distance (not limited to distance learning) require additional efforts from all participants (instructors as well as learners) both in the more traditional residential institutions as well as in distance learning institutions. With pedagogical transformation, however, distance education (which placed greater responsibility on the instructor to educate) evolved into distance learning (encouraging students to actively participate in their own learning experiences, thus shifting much of the responsibility to the learner), thus reducing cognitive/conceptual distance between the instructor and the learner, and with learners actively participating in their own studies, issues of conceptual development and understanding are reduced.

Higher education has brought about social and economic transformation since the first industrial revolution. Nonetheless, with every industrial revolution, the transformation of higher education has lagged behind. The current Digital Industrial Revolution (DIR) has changed the way students learn, which subsequently necessitates changes in the way we teach. As a result, transformation of pedagogies in higher education can no longer take the back seat, and the growing interest in online qualifications makes it almost impossible to continue with traditional ways of teaching. Furthermore, virtual classrooms have become even more attractive for the technologically insightful learners, compelling the advancement of pedagogies in higher education. As a result, the transformation of distance learning to Open Distance E-Learning (ODEL), which focuses on expanding student access to higher education, as well as the integration of technology to enhance teaching and learning, has minimized issues of cultural, emotional, linguistic, pedagogical, as well as psychological and social distance by opening higher education to everyone who meets the minimum requirements.

Access to technology brings a plethora of information, and online qualifications have become appealing not only to the working mom who studies when her kids go to sleep but also to the post-secondary-school learners who find it cost effective to study with the best institutions without having to worry about exorbitant accommodation

fees. Moreover, technology offers a multitude of benefits, allowing learners to study in the comfort of their own homes, to be actively involved in their learning, and to ask questions without fear of sounding ignorant to fellow classmates. Technology makes room for one-on-one communication possible and allows for discussions and group activities amongst learners through virtual classrooms. It provides access for a multitude of students from all over the world, necessitating a curriculum that is reflective of global concerns and yet sensitive to local issues. Technology incorporates the diversity in cultures, traditions, and beliefs and links local issues on a global scale, making inter-continental collaboration a possibility. The introduction of technology-enhanced learning (TEL) has, however, introduced a new barrier to distance learning—technological distance, where the lack of technological skills (of both the instructor and the learner) becomes a hindrance in technology-based teaching and learning.

Institutions of ODL in South Africa were slowly “testing the waters” of an e-learning environment; however, the imposed country-wide lockdown due to Covid-19 necessitated significant changes; institutions of higher learning were forced to abruptly implement online learning in all qualifications in an effort to save the academic year. This led to the implementation of “mystery” alternative remote online summative assessments, at least for the first remote online assessments (between May and July 2020), where online tools were implemented without being understood by both the students and the instructors. Instructors/academics had to design and develop online summative assessments that would accommodate all students, and students needed to have access to all the relevant tools that would allow them to successfully complete their assessments.

As mentioned earlier, distance teaching methods shift much of the responsibility to the student. The student must be disciplined and make time to study; the onus here is more on the student than in traditional face-to-face teaching where the student’s responsibility is to attend lectures. With the onus on the student, much of the responsibility of the instructor is on assessments. The instructor has to ensure that an assessment for learning (formative assessment) affords the student an opportunity to learn and understand concepts (through constructive feedback) and that an assessment of learning (summative assessment) presents an opportunity to evaluate the student’s learning and application of knowledge. This, however, becomes more difficult in a developing country where majority of the students lack the requisite technological skills. Moreover, students are faced with unstable internet connections coupled with exorbitant data prices. As a result, the introduction of online summative assessments resulted in increased anxiety among students who could not afford data as well as those who did not have access to the very technology needed to complete the summative assessments. Coupled with the country’s unreliable electricity systems, network problems, and poor internet connectivity, students were facing an increasing list of things that could go wrong, which made online summative assessments more stressful for students. The first online summative assessments written in 2020 were imposed on all parties involved, forcing the more technologically disadvantaged students to either “lose” the academic year or find “*alternative ways*” of completing the academic year, where students found themselves confronted with opportunities of participating in academic dishonesty. These assessments were implemented without any form of proctoring, a condition that students were well aware of, thus presenting more “*secure*” environments and opportunities for students to participate in acts of academic dishonesty.

Academic dishonesty in higher education has been around for decades [2–15]; it includes cheating in assessments through the use of hidden notes and texts written on concealed parts of the body, on clothes, and on permissible stationery such as rulers [3–5, 7–9, 12]. Academic dishonesty also includes collaboration with other

students (sometimes exchanging or even sharing work), acts of plagiarism, as well as paying someone to do the assessment for you. It is, however, not a new phenomenon restricted to e-learning. Students have always engaged in academic dishonesty; however, the introduction of technology-based learning has made cheating even more accessible. Although online teaching and learning has been gradually introduced in ODL in higher education in South Africa, due to its nature, the use of technology-based learning methods was reserved for formative assessments, whereas summative assessments still employed the use of the more stringent, traditional venue-based exams. However, as mentioned earlier, this was apprehensively changed due to the imposed lockdown as a result of the Covid-19 pandemic.

The aim of this study is to determine the impact of TEL on teaching and learning (particularly curriculum design and student success) in a postgraduate module offered at an ODeL institution of higher education in South Africa. The study evaluated changes in curriculum design coupled with student success rates over a period of 10 years, from 2011 to 2022. The study follows the progressive evolution of the mode of delivery of an honors module in Environmental Management from distance education, through distance learning, to the current technology-enhanced online learning.

2. Materials and methods

The study evaluated the decadal progression of student success in one postgraduate module offered at an institution of ODeL in South Africa. The evaluation of student success rates was monitored from 2011 to 2022. Over 3000 students have enrolled for the postgraduate module in Environmental Management (at an average of 300 students each year) in the past ten years. The academic year for the postgraduate qualification runs for 11 months from April to February, with students writing their summative assessments in February each year. Thus, the study analyzed the results of the 2011 students who wrote their summative assessment in 2012 through to the 2021 students who wrote their summative assessment in February 2022.

Over the past 10 years, the module has evolved from an offline module (2011–2013) to a blended module (2014–2019) to now a fully online module (2020 to date). For the purpose of this study, an *offline module* is a module that is paper-based, where students receive hard copies of their study material (tutorial letters, study guides, and formative assessment administered through the postal service); a *blended module* is one where the study material is available both in hard copies as well as online and where the students still have the option of submitting hand-written or typed assessments in hard copies.

In both the offline and blended module offering types, the final summative assessment was a “traditional, pen and paper venue-based examination.” A fully *online module*, on the other hand, is a module offered only online, where all assessments (both formative and summative) are completed online.

Through the evolution of the module’s mode of delivery, the design of the module also had to evolve, and the students also needed to adapt to the changes.

2.1 Offline mode of delivery

Between 2011 and 2013, students received hard copies of the study material, and they also submitted hard copies of all assessments. During these years, students received copies of the tutorial letter that informed them of all relevant information such as the name and contact details of the module lecturer.

In addition to the assessment plan, as well as the summative assessments, the tutorial letter provided a list of contact details of all relevant academic departments such as the library, assignment, as well as the examination departments. A study guide was also provided, and the module also included copies of case studies and reading material that were provided to students. Due to the institution's high number of print production (for all qualifications), study material was prepared and finalized 6 months in advance, which meant there was no room to “*add on*” or alter the study material once it was finalized, meaning that the module content could only be altered for the next academic year. The offline mode of delivery administered two formative assessments which contributed 30% (15% each) to the year mark as well as a final venue-based examination, which contributed 70% to the final mark. In order to pass the module, the student needed to pass the examination with a minimum of 50%.

2.2 Blended mode of delivery

The blended mode of delivery was implemented from 2014 to 2019. During this period, students received only the tutorial letter in hard copy, and all other study materials were available on the module site. During the first 2 years of this period (2014–2015), this mode of delivery was also referred to as “*paper behind glass*,” simply because the study material was migrated to online. The period however presented an important milestone in distance learning. During this period, extensive adaptations were implemented, and this period also presented an opportunity to design and adapt the module to complement the cohort of enrolled students. During 2016–2019, the module was 85% online, with less than 5% of the students submitting written assessments and with the summative assessment being the only “*traditional-venue-based-open and paper assessment*,” which was still administered offline.

During the blended mode of delivery, one group activity (with a weighting of 20%) was introduced into the module, increasing the total number of formative assessments to three (all contributing 30% to the year mark), and similar to the offline period, the exam mark still contributed 70% toward the final mark (with a minimum of 50% required to pass the examination).

2.3 Online mode of delivery

The implementation of TEL in South African higher education was significantly low and took place at a relatively slow pace, however, the imposed lockdown in 2020 as a result of Covid-19 catapulted the use of technology to unprecedented heights in a very short space of time. During this time (2020 to date), the mode of delivery has become strictly online.

The introduction of technology-enhanced teaching and learning in 2014 meant that the transition of the module to being fully online in 2020 was manageable. During this time, only the exams were “*transitioning*,” and as a result, the final venue-based exams became remote/take-home/online exams.

2.3.1 Continuous assessment

As of April 2022, continuous assessment was implemented in the module. The number of assessments were increased to 8, spread out throughout the duration of the course. The assessments had different weightings based on the type of assessment (multiple choice, peer assessment, group activity, essay type) as well as the level of

involvement. The final assessment (assessment 08), with a weighting of 30% to the final mark, was in the form of a portfolio of evidence that was submitted in December 2022.

2.4 Summative assessments

The final summative assessments of the module were administered during the university's January/February examination cycle, meaning that the academic year ran from April through to March of the following year when the final results were released. Summative assessments were administered throughout the world with the assistance of invigilators employed by the institution. Examination venues were available throughout South Africa, as well as in other cities internationally. Over the past 10 years, international students enrolled for the module were located in Botswana, Congo, eSwatini, Germany, Lesotho, Namibia, Qatar, as well as the United States of America. Although a majority of international students in the US, Germany, and Qatar were originally South African students living abroad, other international students were natives of their countries. Moreover, the module also accommodated incarcerated students who also completed their summative assessments at their primary locations, with the warders administering the proctoring of the assessments.

To ensure adequate evaluation of each cohort of students, the study evaluated the throughput of the 2011 students, who wrote their summative assessment in the 2012 January/February exam period, and that of the 2012–2021 students, who wrote their summative assessment during the January/February exam period of the next year. In both the offline as well as the blended-delivery period, summative assessments were conducted in a traditional pen-and-paper, venue-based exam setting, where invigilators were employed to monitor students during the examination process. However, in February 2021, summative assessments were in the form of a timed take-home exam, where the students only had their conscience as an invigilator for the duration of the exam. Due to inevitable limitations that could occur at any given time in South Africa (such as load shedding, where electricity can be shut down for a limited time in a specific area, poor internet connections in most parts of the country, and unreliable network), coupled with the poor technological skills of the majority of students enrolled for the module, as well as the general anxiety of students regarding online examinations, the instructor of the module implemented an *“open, technology-based summative assessment”* in the form of a timed portfolio of evidence where students were given 72 hours to complete the assessments. The aim of implementing an *open, technology-based summative assessment* was to ensure that *“no student is left behind”* (that students had enough time to complete the assessment without stressing about load shedding and connectivity issues); they were also allowed to write their assessments by hand and scan and upload their submissions online. As part of the online examination induction process during the 2020 academic year, students were made aware of different types of academic dishonesty. Students were informed of the university policy on academic dishonesty, which explicitly/unequivocally stated that *“any form of academic dishonesty will not be tolerated by the university, and that students who are found to have contravened the policy will face disciplinary action.”*

In addition, students were informed that due to the nature of the assessments, acts of academic dishonesty would not be tolerated. Furthermore, the question paper included a declaration form that each student had to complete, sign, and submit together with their answer scripts, stating that they were aware of the university policy on academic integrity as well as the consequences thereof. The study therefore, focused on the act of plagiarism as a form of academic dishonesty. The submitted

scripts were automatically submitted to an internet-based plagiarism detection platform to evaluate or identify any similarities with other published documents.

The study identified assessments where:

- students copied sections directly from their formative assessments,
- students took another author (s)' work and presented it as their own,
- as well as students copied from a multitude of authors and only credited parts of the work, presenting the rest as their own thoughts and ideas.

During the 2022 January/February examination period, however, the final summative assessment was changed to an online 3 hour-examination, which administered a proctoring tool and was also ran through an internet-based plagiarism detection platform and for the 2022 continuous assessment cohort, the students submitted their final portfolio of evidence in December 2022.

The study analyzed the performance of students in the 2021 "open, technology-based summative assessment" as well as the performance of students in the 2022, 3 hour-online summative assessment who were enrolled for a postgraduate module in Environmental Management at an institution of ODeL in South Africa. The results were compared to the results of previous venue-based summative assessments (2011–2019) for the same postgraduate module. Since the academic year for the postgraduate qualification runs from April to February, with students writing their summative assessments in January/February each year, the study analyzed the results of the 2011 students, who wrote their summative examination in the 2012 January/February exam period through to those of the 2021 students, who wrote their summative assessment in the 2022 January/February examination period.

This study incorporates the Scholarship of Teaching and Learning (SoTL) together with the concept of learner-centered learning, in an effort to enhance the ODeL pedagogy. The SoTL introduces a paradigm shift in higher education. It can be described as a pedagogical revolution, which connects research and one's personal learning and teaching practices with the ultimate purpose of enhancing student learning. In an effort to improve teaching and learning, as well as the overall experience and success of students, one has to evaluate their own teaching and systematically examine student learning by critically evaluating and moderating formative and summative assessments with the view of identifying areas that learners might find difficult.

3. Results and discussion

As mentioned earlier, during the first 8 years of the study (2011–2019), summative assessments for the postgraduate module were administered by invigilators present at examination venues across the world. During this time, there was only one reported incident of a student who was caught cheating during the examination. The student's script was confiscated, and the student subsequently failed the summative assessment (**Table 1**), thus failing the module.

When evaluating these exam scripts over the years, the instructor was confident that students used their knowledge and also applied their own understanding when answering the exam questions. In the 2021 examination, however, it was clear that students simply copied and pasted their answers from other online sources, as well

Academic year	Date of summative assessment	Number of enrolled students	No of students admitted ^a to summative assessment	No of summative assessments submitted	No of students who passed summative assessment	No of students who failed summative assessment	Minimum summative assessment mark	Mean of summative assessment mark	Maximum summative assessment mark	Average module pass rate
2011	Jan/Feb 2012	264	255	236 (89%)	221	15	21%	65%	96%	94%
2012	Jan/Feb 2013	363	354	341 (93%)	321	20	28%	64%	89%	94%
2013	Jan/Feb 2014	315	306	298 (95%)	275	23	26%	62%	83%	92%
2014	Jan/Feb 2015	319	313	305 (96%)	262	42	32%	59%	86%	86%
2015	Jan/Feb 2016	343	343	310 (90%)	300	10	33%	62%	82%	97%
2016	Jan/Feb 2017	346	346	284 (82%)	261	23	22%	60%	78%	92%
2017	Jan/Feb 2018	303	301	246 (82%)	233	13	39%	65%	86%	95%
2018	Jan/Feb 2019	367	364	289 (79%)	271	18 (1 ^b)	11%	64%	92%	94%
2019	Jan/Feb 2020	335	331	271 (81%)	261	10	29%	65%	86%	96%
2020	Jan/Feb 2021	383	382	302 (79%)	251	51 (46 ^b)	32%	60%	93%	83%
2021	Jan/Feb 2022	395	395	308 (78%)	269	39 (6 ^c)	18%	59%	79%	87%

^aExam admission is based on meeting the module-specific requirements.

^bCases of academic dishonesty.

Table 1. Descriptive statistics showing the number of enrolled students each year, as well as the exam summary statistics between 2011 and 2022.

as from their own formative assessments. During the marking of the exam scripts, certain signs of cheating were identified from the answer scripts submitted by the students. The students with the lower similarity percentages tend to try and hide their cheating by presenting the answers as though it is the application of their own understanding. Some of the give-away signs that a student had engaged in academic dishonesty that were observed during the marking of the exam scripts included:

- *Referring to figures or tables that were not included in the text (see **Table 1** below; however, there would be no **Table 1** in the answer script);*
- *Changes in the use of language (different voices coming across from different parts of the script);*
- *Presenting contradictory statements, which the student was not even aware of;*
- *Extracts with original names that had no meaning in the submitted scripts.*

Over the past 10 years, over 3000 students have written the summative assessment of the honors module in environmental management, with an overall pass rate of 92% (**Table 1**). The 2012–2013 exam results represent the performance of distance-education students who completed the course fully offline. The 2014–2020 results represent the performance of students who completed the module in a blended mode of delivery. All honors modules for the Environmental Management Qualification moved partially online (blended) in the 2013 academic year. The transition to blended learning meant that students had to assume much of the responsibility in order to ensure their success. The study material was now only available online, which meant that the students had the responsibility of finding their study material (as opposed to receiving study material through the postal service) and thus had to spend time online in order to engage with the study material.

In addition to the blended migration, a group activity was introduced in the course, thus introducing interaction among the students and reducing the lonely journey experienced by distance learners. A student assessment at the end of the academic year revealed students' perception regarding the introduced group activity (majority of the students were grateful for the opportunity to interact with other students).

The 2021 and 2022 results represent the performance of online students. Over 300 students wrote and submitted their summative assessments during the 2021 January/February examination period. Out of the 302 scripts, 46 students were found to have contravened the university policy on academic dishonesty (**Table 1**), resulting in an 18% reduction in the pass rate.

The **Figure 1** below gives a graphical representation of the extent of cheating/academic dishonesty during the 2021 January/February summative assessments in the postgraduate module.

Although the majority of the students copied less than 60% of their exam, the overall number of students who engaged in this activity when compared to only one reported incident in previous years shows that cheating in an online assessment is more accessible to students.

Unlike undergraduate students, postgraduate students are expected to have a better understanding of academic dishonesty and thus are not expected to engage in cheating; however, a study by Josien and Broderick [15] rejects that notion and states that most postgraduate students who engage in academic dishonesty have

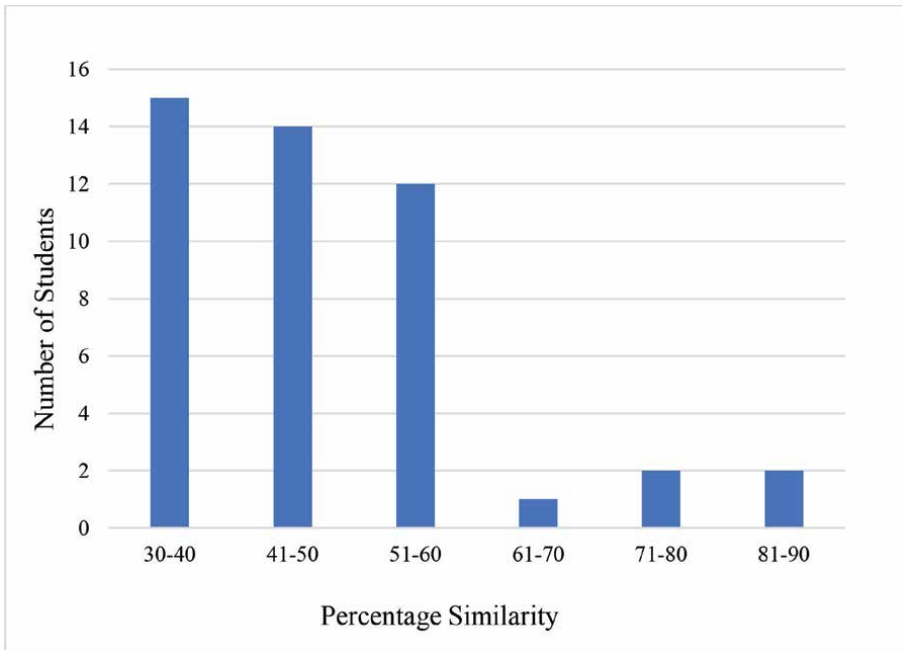


Figure 1. A graphical representation of the extent of cheating carried out by 46 students who were enrolled for a postgraduate module at a South African ODL university during the 2021 January/February examination period.

most probably had more “practice” during their undergraduate studies. This could be agreed with to an extent because the majority of these students who engaged in academic dishonesty in the 72-hour online portfolio assessment were found to have continued with these activities in two other modules where the examination conditions were similar to the traditional venue-based exams (the students wrote a 2-hour timed exam on an online platform). Although it is possible that the students have had practice in undergraduate years, the author of this paper believes that the introduction of remote online assessments has given even the most timid of students an opportunity that they would otherwise not have engaged in.

Based on the number of reported and unreported cases in a department that has previously reported less than ten cases of academic dishonesty per annum, the combined number of students who engaged in academic dishonesty (in other modules too) in the 2020 academic year is at least a hundred times more. Furthermore, the ease with which information is available in this digital era coupled with the discretion afforded by remote assessments, makes it easy for students to solicit information/ answers during an online assessment.

According to Connors [16], access to the internet has made information more readily accessible, and students now have access to pre-written essays, making the sharing and recycling of assessments very easily attainable. Moreover, unrestricted access to information, as well as the level of techno-literacy, also plays a role in the increase in the number of students who commit such acts. **Figure 2** below is a presentation of the age distribution of the 46 students who participated in acts of plagiarism during their remote online summative assessment.

Over 50% of the students who participated in academic dishonesty were between the ages of 24 and 30, whereas the rest of the students were between 31 and 50 years

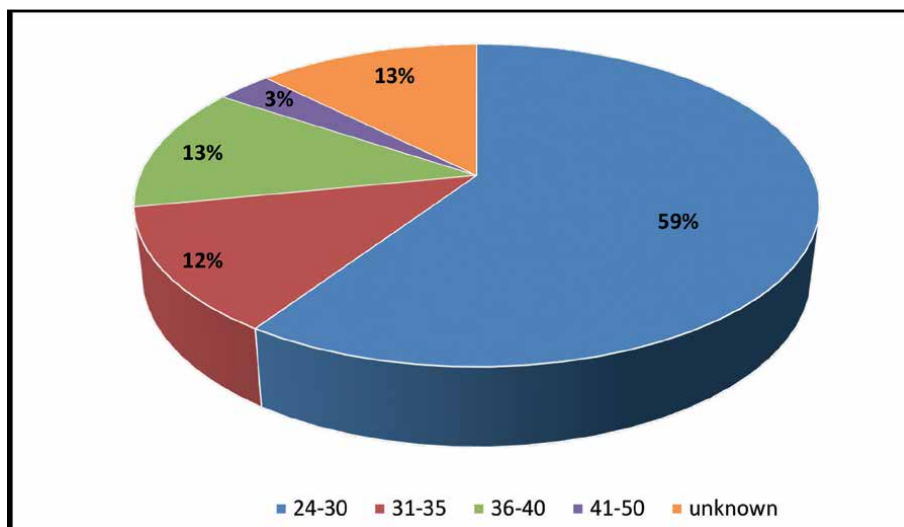


Figure 2.
A graphical representation of the age distribution among the group of students who participated in academic dishonesty during the 2021 January/February examination period.

of age. The results indicate that the younger, more techno-savvy students find it easier to engage in academic dishonesty, a case that was also observed by other authors [4, 6, 16–18]. Technology is here to stay, and the traditional pencil-and-paper type of assessment might just be a thing of the past; therefore, institutions of higher education must put measures in place to reduce or even prevent students from participating in acts of academic dishonesty during online assessments.

Some of the measures that can be put in place include the use of random question sequencing function, which will ensure that students do not work on the same question simultaneously (thus reducing collaboration among students); this, however, becomes difficult in larger classes where the number of students is a hundred times more than the number of available questions.

Other measures that can be implemented include the replication of traditional venue-based timed examinations through the use of proctoring software that allows for real-time face recognition and the use of video conferencing platforms during the assessment. Although these proctoring methods may have other inherent issues (such as lack of access to such tools for the poorer students, exorbitant data consumption during video conferencing, as well as issues of privacy, especially for remote assessments), these measures will reduce the number of students committing acts of academic dishonesty and will increase fairness as well as ensure the protection of the integrity of not only the qualification but also the institution.

During the 2022 January/February examination period, the summative assessment of the postgraduate module was changed from a 72-hour *open, technology-based summative assessment* to a 3 hour online summative assessment, which was administered through the use of a proctoring application. Students were informed of the importance of the proctoring software, which had to be downloaded before the administration of the online assessment at no charge to the student. The proctoring system monitored students' conduct during the assessment, where:

- *random, automatic voice recordings during the 3 hour. examination period were made;*

- students were randomly prompted to take selfies during the exam period, and these selfies were compared to the student's official identification in the university records;
- students were requested to take pictures of their examination answer scripts during the exam;
- random individualized questions were asked through the proctoring app (which students had to complete as part of their assessment);
- the “out-of-app time” as well as the location of students were recorded.

As shown in **Table 1**, out of the 309 students who wrote the summative assessment in 2022, only 6 students were identified to have contravened the university policy on academic dishonesty. In addition to evaluating each student's plagiarism report, the proctoring reports of all students were also scrutinized, and the students who were flagged were found to have spent a considerable amount of time “out of the app” as well as did not take photos of the examination scripts when prompted to do so. A total of 18 students were flagged by the proctoring app, and out of the 18 students, a total of 12 students did not submit their final scripts at the end of the 3 hour examination period, and these students stated network/connectivity issues as the reason for not submitting their final exam scripts for evaluation; as a result, the students were recorded as absent from exam. The plagiarism report of the remaining six students who were flagged by the proctoring app also showed high similarities with published material, indicating that the students simply copied and pasted from other sources (**Figure 3**).

When compared to the 2021 percentage similarity (**Figure 1**), the results presented in **Figure 3** indicates that students tend to “supplement” their written examination with borrowed material presented as their own. Although there was only one case of academic dishonesty reported for the venue-based summative assessment over the past 10 years, this showed that students were able to conceal academic dishonesty (not that it did not take place). Moreover, the integration of proctoring software

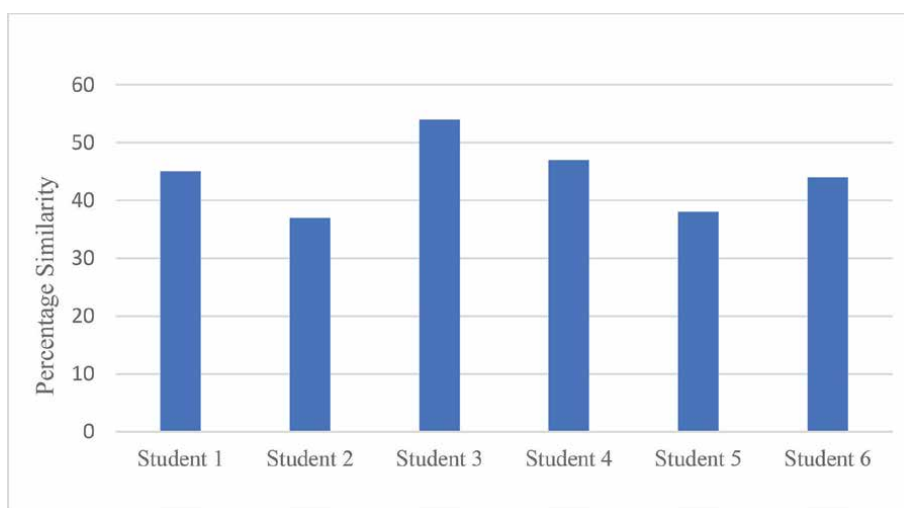


Figure 3.
A graphical representation of the extent of cheating carried out by six students who were enrolled for a postgraduate module at a South African ODL university during the 2022 January/February examination period.

as well as similarity checking software has made it easier for instructors to identify incidents where students indulge in academic dishonesty.

Changing the assessment design in 2022 has resulted in an overall reduction of reported cases of academic dishonesty in the module. Reported cases declined from 46 during the 2021 take-home exams to 6 during the 2022 online proctored examination. An assessment of the two assessment periods showed that the 72 hour take-home exam presented ample time for students to cheat and to also try and conceal the cheating. It can also be argued that the students simply left the exam to the last hour, at which they became overwhelmed and resorted to cheating. The students who were found guilty of misconduct were given an option to be awarded a zero mark and enroll for the module in the next academic year or undergo disciplinary hearing where they would be given an opportunity to present their case to the institutional student disciplinary committee. All 52 students (46 students in the 2021 exams and 6 students in the 2022 exams) opted for the 0 mark and to repeat the module in the next academic year.

Thus, to meet the university's decision to do away with venue-based exams post the Covid-19 imposed lockdown and to protect the integrity of assessments at higher education institutions, online courses must be designed in a manner that encourages active participation from students and, thus, moves away from the traditional "paper behind glass" course development, which results in passive learning. TEL presents a plethora of opportunities to redesign learning from passive learning (where the learners consume content provided by their teachers in the form of recorded lectures, preselected readings, automated assessments, and artificial discussions) to active learning, which incorporates learning activities that guide the student's construction of knowledge through activities and application of previous knowledge, allowing the student to apply their knowledge beyond the virtual classroom, as well as the integration of student reflections [19]. The reflective process allows students to be aware of their strengths and weaknesses during their learning journey, assisting students to assess and determine their capabilities in a particular course, thus allowing students to be active participants in their own studies. As of April 2022, the development of the postgraduate module assessed in the study has incorporated continuous assessments.

Continuous assessments, as the name suggests, are assessments that are administered at a much more continuous scale. The module design was moved from a module with two essay-type formative assessments (which contributed 30% to the student's final mark) and one summative assessment (weight of 70%) at the end of the academic year. The module now has integrated a total of eight assessments, each with different weightings contributing to the student's final mark. The assessments are spread out throughout the duration of the course. Students actively participate in their learning journey through the completion of multiple-choice assessments, discussion forums, peer reviews, group activities, as well as individual assessments.

In a continuous assessment module, learners cannot afford to miss one or two assessments, as this will have a negative impact on their overall final score; hence, they have to constantly engage with the study material to ensure their success. Moreover, the group activities and peer reviews administered as part of continuous assessments assist students with their own self reflections, allowing students to be aware of their own strengths and weaknesses [20]. Continuous assessments help students to achieve their learning outcomes and develop autonomy, allowing them to be active participants in their studies and also derive learning strategies that are informed by their own competencies. The assessments completed by the students relied on the student's application of previous as well as new knowledge, also incorporating opportunities for them to demonstrate their strengths, skills, and expertise.

Although the results of the 2022 academic year are not available at this period, the preliminary results indicate an improvement in the overall performance of the students.

Even though the study has assessed the performance of different students over a period of 10 years, the module has maintained an average pass rate of 92%, indicating the consistency in the module design and development as well as the assessment criteria.

Furthermore, the constant pursuit to improving the learner's engagement with the study material has also translated to improved throughput rates. Thus, the introduction of TEL, coupled with continuous assessments and adequate student support, presents a unique opportunity for the next cohort of students to actively engage in their own learning journeys, shaping their cognitive development while reflecting on their own academic expansion as they apply their existing and newly acquired knowledge, not only in the classroom but also in all spheres of their personal lives and their communities.

4. Conclusions

TEL is still in its infancy in Southern Africa, and as a result, institutions of higher learning are still faced with a myriad of challenges regarding the use of technology to enhance teaching and learning, particularly in an ODeL institution. In order to take advantage of the benefits of integrating technology into teaching and learning in institutions of higher education, it is important to first tackle the issue of access to technology, as well as issues of stable and reliable Internet connection. It is also imperative to ensure that academics have the requisite skills to excel in designing and developing curricula that integrates the use of technology in their teaching, and to also ensure that students have the required basic skills to take advantage of all the opportunities that TEL provides.

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Conflict of interest


The author declares no conflict of interest.

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Lessons Learned during the Transition to Online Learning in a University Nutrition and Exercise Department

Angela S. Anderson, Heather Cox, Renee Eaton, Nicolin Girmes-Grieco, Michelle S. Rockwell and Deborah J. Good

Abstract

In the spring semester of 2020, the COVID-19 pandemic led to an unprecedented shift from face-to-face learning to an instantaneous online learning environment. At the time, the department of Human Nutrition, Foods, and Exercise (HNFE) at Virginia Tech had few online class offerings. Twenty-nine Spring 2020 HNFE classes were transitioned from traditional face-to-face offerings to online delivery models. Many members of the HNFE faculty have strong pedagogical training, but the immediate pedagogical shift in the middle of the semester gave little time for adequate course design geared toward online learning. As such, the purpose of this study was to evaluate student perceptions of the transition to online learning. A departmental survey employing quantitative and qualitative questions was used to assess students' learning experiences in the spring of 2020 and then re-employed at the conclusion of the Fall 2020 semester to re-assess students' online course experience and identify if the department was improving in online course delivery. An additional component of the survey specifically evaluated students' self-perceived motivation for learning. Examples of educational and logistical strategies in online learning environments implemented by instructors and findings of students' experiences from both surveys will be shared.

Keywords: synchronous learning, virtual environment, virtual learning, MUSIC model, dietetics, STEM

1. Introduction

The pandemic caused by the outbreak of the severe acute respiratory virus coronavirus, SARS-CoV-2, will be remembered as a major event in our world history, and its impacts were also felt in higher education. In the spring semester of 2020, in consultation with the Centers for Disease Control and Prevention and local health

agencies, many institutions of higher education initially extended spring breaks and rapidly shifted to an online learning environment for the remainder of the semester. It is important to differentiate this hurried shift into an online environment, compared to a situation in which instructors could develop a well-planned, and intentional online course. In the case of the department of Human Nutrition, Foods, and Exercise (HNFE) at Virginia Tech, there was only one undergraduate online class taught out of 29 courses (3.4%) offered in the Spring 2020 prior to the COVID-19 pandemic, although five online offerings (62.5% of courses) were available during the 2019 Summer semesters. Colleges and universities around the world transitioned to online environments for all courses, rather than the alternative of discontinuing the spring semester. At Virginia Tech, a large research 1 (R1) university with approximately 30,000 undergraduates, this decision came through an email to faculty, staff, and students on March 11, 2020 from President Tim Sands [1]. Spring break was extended by one week to give instructors the time to make the transition from face-to-face teaching to a 100% online environment. Students were not allowed to return to campus except in special circumstances. Some had left books and other notes behind in their dorm rooms or campus apartments. Others were stranded overseas or dealing with situations not conducive to online learning. Similar to other reports published on student mental health at that time (i.e., [2, 3]), a survey from Hokie Wellness (a health-promotion service of Student Affairs) indicated that approximately 65% of students at Virginia Tech reported increased stress, anxiety, and mental health concerns compared to the semester prior to the COVID-19 pandemic (personal communication).

Instructors in each Virginia Tech college were recruited to serve as “Continuity Partners” and held webinars and online help sessions to quickly train colleagues in transitioning their courses online, and to troubleshoot issues for instructors and students in this transition. These instructors generally had previous experience and training in online teaching and learning but were also transitioning their own courses. While these trainings undoubtedly helped Virginia Tech instructors get courses ready, they did not compensate for the abrupt shift in the delivery of content for courses, ranging from small classes of 5–25 students to large lectures of greater than 200 students. Lab courses presented additional barriers in content delivery due to the need for specialized equipment and space.

A number of published studies have examined the use of planned digital learning platforms. A meta-analysis of 25 online courses in Nutrition and Dietetics programs over a 30-year period, including during the COVID-19 pandemic, described barriers to online learning even for students who were technologically and emotionally prepared for the experience. The authors noted that student access to the internet, as well as lack of instructor training in the delivery of online platforms, resulted in differences in equity and access to education during the pandemic [4]. Subsequent studies have analyzed the impact of this switch from face-to-face to online courses. For example, 62% of 526 students surveyed in a study published by Dietetics instructors from the University of New Mexico, felt that the COVID-19 pandemic had negatively impacted their learning, with 48.5% indicating that they felt they learned less material during the COVID-19 pandemic than before [2]. These data point to a supposition that many instructors did not have the training for delivery of online courses prior to the COVID-19 pandemic.

Singh and Thurman reviewed the different platforms and methodologies available from 1988 to 2018 and published a report in 2019 that came to the conclusion that online education is an umbrella term encompassing both online learning and online teaching [5]. For the purpose of this study, we used the most common term, online learning, as defined by Singh and Thurman, as this term covers both synchronous and

asynchronous platforms and is synonymous with distance education. This term also focuses on the learning component of the platform, which we were interested in for this analysis.

We assessed the transition to online learning platforms in the HNFE department, which prepares students for careers in healthcare, nutrition, dietetics, and exercise science, with a survey that went out to more than 900 HNFE undergraduates. The goal of this study was to survey the change in attitudes toward online learning, assess positive and negative outcomes of the transition, determine valuable tools for students and instructors, and barriers to online learning that could be identified. Both the Spring 2020 and Fall 2020 surveys used the MUSIC model of academic motivation [6], as well as general survey questions and open-ended text responses.

2. Data gathering

Several HNFE instructors had participated in professional development courses in online learning, but no amount of training adequately prepared the instructors for the complete and sudden pivot to online learning that took place in March 2020. Recognizing the need to learn from this abrupt delivery shift, the authors administered a survey at the end of Spring 2020 to assess the transition to online learning. After data collection and analysis, the survey was refined and sent to students at the end of Fall 2020 to again assess student perceptions of online learning. The text of the surveys can be found in the supplemental appendix materials.

Survey outcomes included student demographics, attitudes about online learning, interactions with the online learning environment, positive and negative outcomes of the transition to online learning, valuable tools for online learning, barriers to online learning, and student motivation per each HNFE class taken, as measured by the MUSIC model [6]. The Institutional Review Board at Virginia Tech considered this survey study exempt from human subjects review. Surveys were distributed using the Qualtrics survey software platform (Qualtrics XM, Provo, UT, USA). Students who completed the survey were entered into a random drawing for one of 20, \$25 gift cards to Amazon. The drawing was performed two times, once in the Summer of 2020 and once in the Winter of 2021.

2.1 Demographics of students completing the surveys

Demographics of the students that completed the survey were collected (**Table 1**). The first survey was given in June 2020 and 302 students completed the survey. The second survey was given in January 2021 and 229 students completed the survey. For the spring 2020 survey question on demographics regarding academic standing, students were instructed to provide the academic year that they just finished at the end of spring 2020.

2.2 Lessons learned from spring 2020

Managing online course delivery proved to be a steep learning curve for many students. As shown in **Figure 1**, only 30.6% had taken an online class before and only another 6% had participated in a hybrid (50% face-to-face and 50% online) class, leaving 64.4% of students who had never participated in online learning. Of the 152 students who responded to the open-ended question comparing how they felt at the end of spring 2020 compared to when they first transitioned in March, 52.6%

Academic standing	Spring	Freshman (12.9%)	Sophomore (26.2%)	Junior (39.7%)	Senior (8.3%)	Graduated (12.9%)
	Fall	Freshman (16.1%)	Sophomore (22.1%)	Junior (26.6%)	Senior (33.7%)	Other (1.0%)
Gender	Spring	Male (11.9%)	Female (88.1%)			
	Fall	Male (11.0%)	Female (89.0%)			
Ethnicity	Spring	White (86.4%)	Black (1.7%)	Asian (6.9%)	Multiple (4.3%)	Other (0.7%)
	Fall	White (80.4%)	Black (1.5%)	Asian (13.1%)	Multiple (3.5%)	Other (1.5%)
First Generation	Spring	Yes (10.9%)	No (89.1%)			
	Fall	Yes (11.6%)	No (88.4%)			
Transfer	Spring	Yes (9.6%)	No (90.4%)			
	Fall	Yes (10.0%)	No (90.0%)			

Students who completed the surveys in the Summer of 2020, n = 302 (Spring) or students who completed the second survey in the Winter of 2021, n = 229 (Fall).

Table 1.
Demographics.

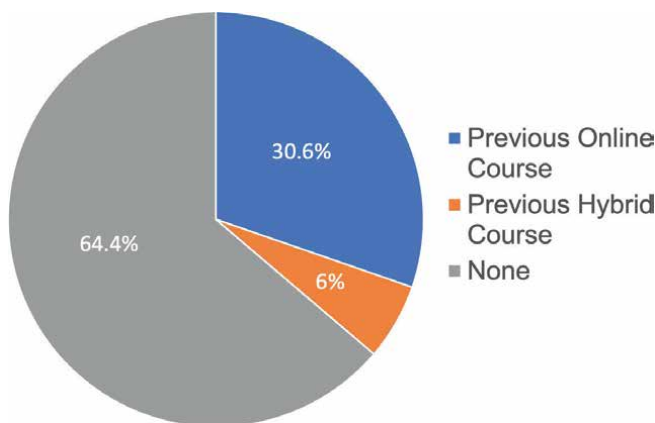


Figure 1.
Previous experience with online courses. Students in Spring 2020 who had previous taken an online or hybrid course.

reported that the shift in class format was stressful until they got used to the new format, 16.4% mentioned that they needed to work on time management to adapt to the switch, but they had more autonomy, 13.8% mentioned that they preferred face-to-face classes, 11.2% preferred the online classes, and 4.6% mentioned that the switch led to the class being harder or having more class work. Overall, the theme was that the transition was bumpy for many students and that some instructors did not transition as smoothly (or as seamlessly) as others.

Several course instructors moved their classes to asynchronous learning, the only model of online learning many knew. Other instructors continued to meet during class time synchronously and lectured over Zoom. The biggest barriers students had to asynchronous learning were:

- Distractions from friends, classmates, family, pets, etc.
- Lack of quiet or private place to participate in class
- Lack of reliable/stable internet connection
- Not able to participate in classes due to others needing to use shared technology; issues related to taking tests (i.e., proctoring, time on tests)
- Unclear communications or expectations from instructors about class.

Synchronous learners mentioned the same barriers, except they added a barrier about confusion on how to use the video conference software or technology application for class, and did not rate as high that sharing technology with family or others was a barrier to participating in class synchronously.

The question remained whether, despite barriers, the students enjoyed the new online learning environment. When students were asked what mode of delivery for a class they preferred, 67.4% said face-to-face, citing that face-to-face learning:

- Provided a better learning environment
- They felt more focused and awake
- They learned more in face-to-face classes
- Were able to ask questions on material and instructions for assignments
- Felt class was slower paced than watching videos
- Felt that there were more personal stories from the professor that related to the topic, more group activities/projects as well as labs, cooking, and oral presentations
- Felt that the professor was more engaging in face-to-face classes and were able to build relationships with the professor and the TAs, meet guest speakers in person, as well as see demonstrations face-to-face
- Liked the firm schedule, which gave accountability
- They did not have to worry about internet problems.

On the other hand, 18.1% thrived in the online learning environment citing that online learning:

- Was easier
- They were able to sleep-in and not be so tired

- Felt that they paid more attention because they were not as distracted as they were in big lecture classes
- Liked completing the course work at their own pace, managing their own time, completing work on their own time schedule, and liked the flexibility
- Liked that they could pause videos and re-watch them
- Some felt that they participated more online
- Liked that they could participate when not in town
- Liked that they did not have to race across campus to make it to class or have to travel to campus.

A total of 14.5% of students preferred a hybrid model citing that:

- They liked some face-to-face contact to ask questions
- They paid better attention when in class
- Liked the interaction with classmates
- Felt they gained a better understanding of the material
- Liked having video lectures to watch/re-watch at their own pace
- They liked to work at their own pace.

Another factor in whether online learning was successful was access to the internet and the student's location. In the spring of 2020 when the campus closed for the most part, 65.2% of students returned to their family's homes to complete their online learning. Most of the remaining students stayed in town (31.1%). This was in contrast to fall 2020, where 29% of students were on-campus, 67% off-campus but in town, and only 3.1% remained at their family's home. The location of online learning was important when it came to accessing the internet. In the spring of 2020, 92.5% "always" (57.2%) or "usually" (35.3%) had access to reliable internet. This changed as students moved back to town where 85.8% identified as "always" (17.8%) or "usually" (67%) had access to reliable internet.

Many tools are available to facilitate online environments, including learning management software (LMS), polling apps, video conferencing, video recording and playback, breakout rooms for discussions, and discussion forums. We assessed which tools were perceived by students to be most helpful during the transition to online learning. As shown in **Figure 2**, students rated the LMS as the most effective tool. At our university, this is the Canvas™ platform (Instructure Inc., Salt Lake City, UT). Voice over videos which students could re-watch were given the next highest rating, followed by synchronous videos, likely created via the university-supported video conferencing (Zoom, Zoom Video Communications, San Jose, CA) environment. In comparing effective tools used in the online environment from spring to fall 2020, there was little change (**Figure 2**) with the LMS and pre-recorded voice over videos given the highest scores.

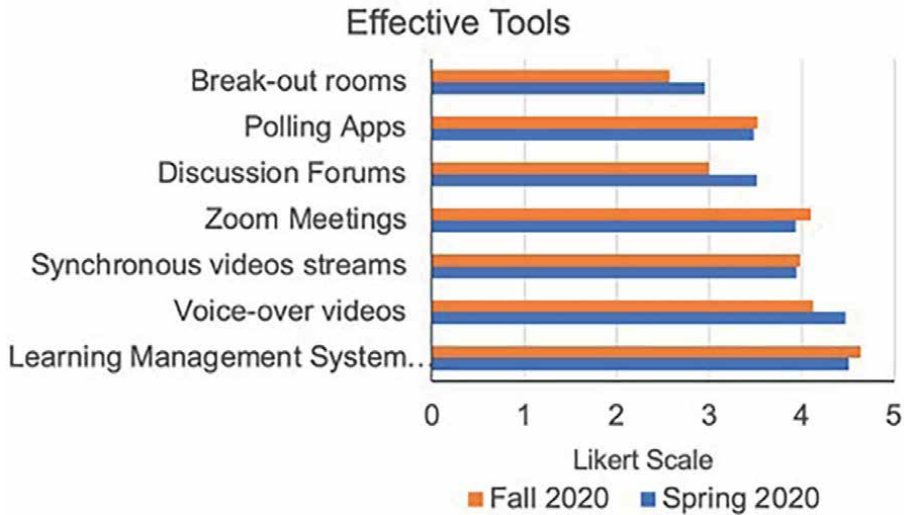


Figure 2. Student perception of effective tools in Spring 2020 (blue) and Fall 2020 (orange). Likert scale on which tools were useful with 1 (strongly disagree/not useful) and 5 (strongly agree/useful).

Lastly, we wanted to know whether students felt motivated to learn in this new environment. Using the MUSIC model for student perception of motivation to learn, we assessed in each HNFE class, their eMpowerment, Usefulness, Success, Interest, and Caring (**Figure 3**). The MUSIC model of academic motivation (<https://www.themusicmodel.com>) is a validated survey [7–9] that can guide instructors to identify areas to improve student motivation [6]. eMpowerment measures whether students perceive that they have control in their learning environment. Usefulness measures whether students perceive that the coursework is useful to their future. Success measures whether students perceive that they can succeed at the coursework. Interest measures

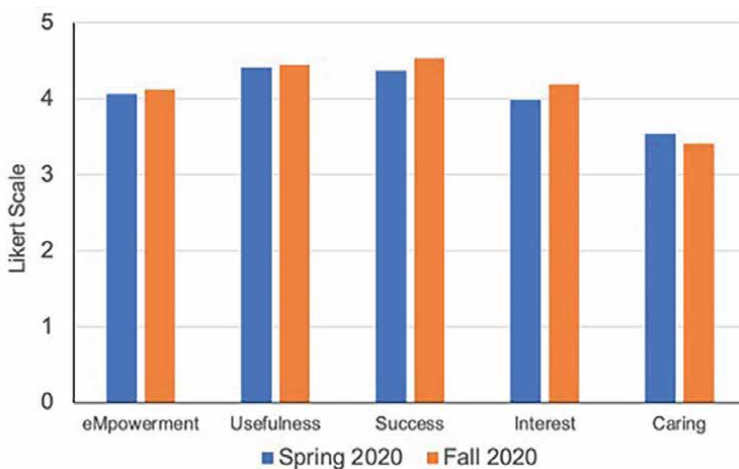


Figure 3. Comparison of MUSIC Model for Academic Motivation scores Spring 2020 (blue) and Fall 2020 (orange). Likert scale scoring is used on which tools were useful with 1 (strongly disagree/not important) and 5 (strongly agree/important).

whether students perceive that the instructional methods and coursework are interesting and enjoyable. Caring measures whether students perceive the instructor cares about whether they succeed in the coursework and about their well-being. The question remained: Were these five dimensions of classroom design being met in this new online environment? **Figure 3** outlines the aggregated results from all HNFE classes.

Overall students rated Usefulness and Success as the highest variables, indicating that the coursework was useful to their future careers, and they felt they could be successful. They rated eMpowerment and Interest as the next highest variables, still in the “somewhat agree” category, that they felt mostly in control of their learning environment and that the coursework was interesting. Of concern was the Caring rating at a “somewhat agree” to “somewhat disagree.” This was one of the biggest takeaways from the survey, namely that the online environment did not provide the same level of feeling cared for as a face-to-face environment. A limitation of the responses to the Caring measurement, was that it was the section with the lowest percentage of student responses, as students may have suffered from survey fatigue.

2.3 Lessons learned from fall 2020

After an entire semester of almost exclusive online learning, we administered a follow-up survey to assess how students’ perceptions had changed and if we, as instructors, were doing a better job at teaching online. Compared to the second half of the Spring 2020 semester, more instructors were teaching synchronously during scheduled class periods with 46.6% of HNFE classes taught synchronously, 44.6% taught asynchronously, with the remaining courses delivered in blended formats. Synchronous instruction was mediated through Zoom (Zoom Video Communications, San Jose, CA, USA). So how did students interact in this synchronous Zoom classroom? A total of 18.6% of students indicated that they joined via Zoom but did not participate. When a student needed to ask the professor a question, 20.9% indicated that they would ask through audio, while 43.3% only asked questions using the chat. For those instructors that used Breakout Rooms through Zoom, 93.1% of students indicated that they participated in the breakout rooms, while 6.9% indicated that they left the Zoom if Breakout Rooms were used. In general, instructors desired for students to have their cameras on during the Zoom to increase the sense of community. Students, on the other hand, for the most participated with their cameras off (32.2% participated in Zoom with their cameras on, 67.8% with their cameras off). There were 97 comments given by the students for not turning on their cameras.

These comments were organized into the following themes (unranked order):

- Cameras not being required
- Felt uncomfortable/self-conscious
- Did not want to turn theirs on if others were not required
- They were multi-tasking while during class
- Felt it was easier to focus with the camera off
- They were still in bed or their environment was distracting (i.e. messy, room-mates), or they were not presentable for class

- Their internet worked better
- In large lectures, they felt too many people were watching them if their camera was on.

We wanted to assess whether students still felt there were barriers to both synchronous and asynchronous learning and whether these barriers changed as they gained more experience with online learning. For synchronous learning, many of the same barriers still existed with distractions from friends, classmates, family, pets, etc. during class as the greatest barrier, followed by a lack of a quiet or private place to attend class, and reliable/stable internet connection. Issues related to taking tests (i.e., proctoring, time on tests) were mentioned by a greater number of students, as was having a requirement to have their video on during class, and attending class meetings as scheduled due to family or others needing to use shared technology increased as a barrier (**Table A1**). There were fewer comments about instructors having unclear communications or expectations about attending class. There was less confusion about how to use the video conference software or other technology applications for class.

For asynchronous classes, distractions from friends, classmates, family, pets, etc. were still the biggest barrier and access to reliable/stable internet connection stayed as the 3rd most frequent barrier. For the asynchronous classes, there was an increased barrier to unclear communications or expectations from instructors, and issues related to taking tests (i.e., proctoring, time on tests) (**Table A2**). Barriers that decreased for asynchronous classes included a lack of a quiet or private place to participate in class and attending class meetings as scheduled due to family or others needing to use shared technology.

Students were asked about their perception of rigor for online learning in both surveys (**Figure 4**). Compared to Spring 2020, students' perception that online classes should be easier increased by Fall 2020, with 62% compared to only 37% in the spring agreeing that online learning should be easier than traditional face-to-face learning (**Figure 4**). Fewer individuals were neutral in Spring 2020 (12%) versus Fall 2020 (22%), while those that agreed that online classes should have the same rigor went down to 16% in the Fall compared to 47% in the Spring (**Figure 4**). Therefore,

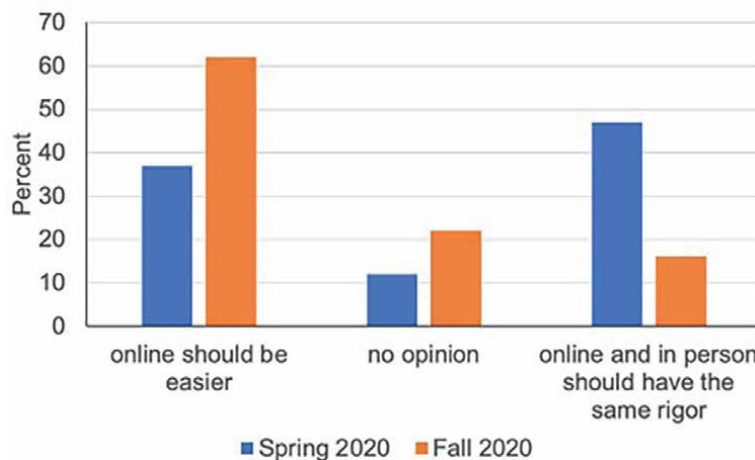


Figure 4. Student perception of course rigor expectations for Spring 2020 (blue) and Fall 2020 (orange).

from Spring 2020 to Fall 2020, there was a shift toward the belief that online courses should be less rigorous than face-to-face courses. Some of the reasons that students cited for this perception included that due to increased self-learning, it is harder to understand the material, harder to focus, and harder to get help, so the expectations cannot be the same. Others mentioned that there was a perception that some instructors added more work or increased the rigor because they thought students had more time. Others mentioned the barriers of internet reliability issues and mental health issues got in the way of learning, so rigor should be reduced. And overall, students felt that assignments should be better adapted for one type of learning or the other, rather than just transferred as is to an online environment.

Students were again surveyed to assess their motivation for learning and for instructors to see in which areas they were improving and in which areas they needed to focus on. The MUSIC model results were surprising, as the results mirrored the spring 2020 results (**Figure 3**). Again, the highest variables for student motivation for learning were in Usefulness and Success with a “somewhat agree” to “agree” rating, followed by eMpowerment and Interest with “somewhat agree,” and again Caring was rated at a “somewhat agree” to “somewhat disagree.”

The survey also asked students to reflect on how their perceptions of online learning had changed from Spring 2020 to the end of Fall 2020. The positives most frequently mentioned about online learning included (unranked order):

- An improved perception of online learning as a whole
- They felt better adapted for online learning
- Felt that the instructors had increased preparedness
- Felt more disciplined
- Enjoyed the flexibility of online learning
- Felt that being back in town for their online learning improved their perception.

Many students still felt that the online learning environment included negatives such as (unranked order):

- Feeling an increased difficulty to succeed in classes
- Felt more distracted
- Felt there was more work
- Felt that the instructors did not always consider student’s challenges
- Felt that some instructors still did not adequately adapt and there was still poor instruction or course preparation.

A smaller number of students mentioned that they felt that it was harder to learn, they felt isolated from other students, having poor internet connectivity reduced their learning, still felt that there were unclear expectations from some instructors, it was

hard to ask questions, and they had poor motivation in an online learning environment. Lastly, the students identified the biggest challenges they had when comparing their current online learning to that of Spring 2020. The most frequent challenges were that they felt burned out, struggling with the demand of self-teaching, setting a learning schedule and deadlines, and having less autonomy than during the spring.

2.4 General reflections from the surveys

Although students stated that they preferred face-to-face instruction, they enjoyed the autonomy that online learning allowed, albeit struggling with the discipline and motivation needed for online learning. Consistently, students mentioned that the distractions from friends, classmates, family, pets, etc. during class were the biggest challenge for both synchronous & asynchronous learning. The students preferred having access to lecture material via posted videos to watch or re-watch to enhance their learning. Overall, many indicated that a blended model of synchronous and asynchronous learning would meet the desire for flexibility and enough structure to stay on track.

Overall, these data gave the instructors of HNFE tangible ways to improve student learning from the lessons learned from the surveys. Ways to improve included being thoughtful about the workload assigned because self-learning takes more time, having clearer assignment instructions since students are not always present in real-time to ask questions, and increasing ways that students feel “cared” for throughout the semester since students at times felt isolated and missed the interactions with other students.

3. Conclusions

The current study used survey-based research to assess the abrupt transition to online learning that occurred in March 2020 in a nutrition and exercise department at a large research 1 (R1) university. The subsequent Fall 2020 semester when instructors had more time to develop online courses was also assessed and the results were compared between the two semesters. With the initial transition to online learning in March 2020, students encountered barriers to their learning which were different than when they were back on campus in the fall. Specifically, a distraction from friends, family, and pets during class time was a significant issue. Additionally, sharing technology with others in the home seemed to affect reliable internet connections for coursework. Students also reported unclear communications and expectations from instructors about class, likely brought on by the quick transition and lack of online course training by instructors for online learning modalities. These findings of unclear communication from instructors were consistent with another study on STEM students' perception of the COVID-19 transition to online learning [10]. Students perceived that online learning environments had improved by Fall 2020 in terms of clarity of expectations and their own knowledge of using online tools. However, even with only 3% of students still working from their family home (96% on campus or in off-campus housing; 1% mixed location), distraction during class time, and sharing the internet were still major factors that students perceived to affect their learning.

An interesting finding when comparing the surveys from both semesters was that by Fall 2020, students perceived that online courses should be easier/less rigorous than face-to-face courses. A 2021 study found that during the COVID-19 transition to

online learning, students in STEM disciplines stated that they perceived an increased difficulty and workload for online courses, compared to what they expected had the class been face-to-face [10]. To date, and to our knowledge, no other studies have asked about perceived rigor for an online versus face-to-face course, so further study of this finding may be an important avenue for investigation, especially as more online courses become available.

This study employed the MUSIC model of academic motivation [6], which has been employed in both undergraduate and graduate/medical student groups as an assessment of student motivation to learn [6, 7, 11–14]. We found that the Usefulness of the course to their future and the ability to Succeed in the course were the highest indicators for academic motivation in both the spring and fall semesters. Of concern from the MUSIC model data, was that the Caring dimension of the MUSIC model revealed the lowest score for both semesters indicating a need to be more intentional in an online learning environment to make students feel cared for. A recent study of students in online courses found that students perceived being cared for by instructors who made clear acknowledgments about mental health and provided resources on mental health in course materials [15]. Additionally, students in this same study reported an exacerbation of depression when courses did not provide both formal and informal interaction time between students and the professor, due to increased feelings of isolation [15]. More research should be done to investigate ways to increase caring and connectedness in online environments. Our study appears to be the first to employ the MUSIC model of academic motivation to learn in assessing online courses.

Most universities have moved back to having the majority of their courses in a face-to-face environment as the educational changes brought on by the COVID-19 pandemic have diminished. However, the online learning environment has not been completely left behind and lessons learned during the pandemic can inform future online learning environments for students. These lessons include the understanding that nothing takes the place of being present and accessible to students. This seems to be more challenging in an online learning environment. Instructors should consider adding time and online spaces for interaction in their online courses. For face-to-face classes, there are ways to incorporate some of the benefits of online learning. Examples include making lecture videos available to students, using Zoom for office hours and review sessions as needed, pivoting to online learning when the professor becomes unavailable, and finding ways to allow students to increase their autonomy, while still providing formal and informal interactions in the online environment.

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Conflict of interest

The authors declare no conflict of interest.

A. Appendix

Barriers	Spring 2020 Rank (number of students reporting)	Fall 2020 Rank (number of students reporting)
Distractions from friends, classmates, family, pets, etc. during class	1 (82)	1 (124)
Unclear communications or expectations from instructors about attending class	2 (66)	5 (63)
Reliable/stable internet connection on my end	3 (56)	3 (87)
Issues related to taking tests (i.e., proctoring, time on tests)	4 (54)	4 (77)
Lack of quiet or private place to attend class	5 (51)	2 (92)
Confusion about how to use the video conference software or application for class	6 (21)	8 (19)
A requirement to have my video on (not just my microphone)	7 (14)	6 (33)
Attending class meetings as scheduled due to family or others needing to use shared technology	8 (11)	7 (21)
Lack of live or closed captioning or ASL interpreters	9 (11)	9 (10)
Attending class meetings as scheduled due to time zone differences	10 (4)	12 (1)
Access to assistive technology software	11 (tied) (1)	10 (tied) (2)
Access to assistive technology hardware	11 (tied) (1)	10 (tied) (2)

Table A1. Concerns for synchronous learning. Concerns are listed in ranked order from highest to lowest number of students citing the barrier in Spring 2020. Relative ranking for Fall is provided.

Barriers	Spring 2020 rank (number of students reporting)	Fall 2020 rank (number of students reporting)
Distractions from friends, classmates, family, pets, etc. during class	1 (92)	1 (82)
Lack of quiet or private place to attend class	2 (64)	5 (51)
Reliable/stable internet connection on my end	3 (44)	3 (56)
Attending class meetings as scheduled due to family or others needing to use shared technology	4 (36)	8 (11)
Issues related to taking tests (i.e., proctoring, time on tests)	5 (35)	4 (54)
Unclear communications or expectations from instructors about attending class	6 (28)	2 (66)
Confusion about how to use the video conference software or application for class	7 (13)	6 (21)
A requirement to have my video on (not just my microphone)	8 (11)	7 (14)
Lack of live or closed captioning or ASL interpreters	9 (10)	9 (11)

Barriers	Spring 2020 rank (number of students reporting)	Fall 2020 rank (number of students reporting)
Attending class meetings as scheduled due to time zone differences	10 (7)	10 (4)
Access to assistive technology software	11 (6)	11 (3)
Access to assistive technology hardware	12 (3)	12 (0)

Table A2.


Concerns for Asynchronous Learning. Concerns are listed in ranked order from highest to lowest number of students citing the barrier in Spring 2020. Relative ranking for Fall is provided.

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Reshaping Blended Learning after the COVID-19 Period in Higher Education

Tamás Köpeczi-Bócz

Abstract

The tragic situation caused by the COVID-19 epidemic also became the biggest experiment in higher education. We sought the answer to the challenges arising at University of Tokaj with a higher education pedagogical experiment. The experiment was based on the practice-oriented design of cooperative learning, which was implemented through the joint project work of groups of different ages. The research question at the center of the experiment was whether the learning effectiveness of the groups participating in the experiment changed as a result of the completely on-line training during the COVID period. Based on deductive logic, the conclusion can be drawn that students active in the COVID period can be effectively educated within the “blended learning” methodology with an online-dominant training organization of up to 80%. The so-called COVID groups do not belong to a uniform age group, but to a group of students with the same history. In higher education, it is advisable to use the effect of the “spontaneous experiment” caused by the global tragedy of COVID as soon as possible, so that within the “blended-learning” method, the ratio of contact (classroom) and online training is between 20% and 80% we approximate to.

Keywords: blended learning, University of Tokaj, cooperative learning, intergenerational training, community service learning, learning effectiveness, Bloom’s taxonomy, deductive reasoning

1. Introduction

In Hungary, one of the consequences of the COVID-19 epidemic was that in March 2020, each university’s Epidemiological Operational Coordinating Board issued a message to the staff. The content of this was to slow down the spread of the new coronavirus epidemic by radically reducing the number of personal meetings. Therefore, in the work of the universities, the conditions for online education were simultaneously created and the personal presence of operational processes was reduced to a minimum. At that time, more than 200,000 students were studying full-time courses at higher education institutions in Hungary. More than 80,000 students chose the part-time and online education forms of higher education, of which only 4000 studied the online education form. These conditions lasted until May 2021, but even then

there was only a hybrid organization of education in the country that kept physical presence to a minimum.

This tragic situation also turned out to be the biggest experiment in higher education [1], since the teachers and students communicated with each other only on electronic educational platforms.

On August 1, 2021, the University of Tokaj was founded as a new university in Sárospatak, Hungary, which defined itself as an agricultural and economic-oriented university on a 150-year-old educational science-oriented university campus. The University's vision is to become a knowledge provider platform for the region that utilizes cutting-edge knowledge locally, while developing and making the region's results accessible at the domestic and international levels, thus contributing to the development of the region's ecosystem. These goals are also formulated in the university's Institutional Development Plan (IDP). Along with the expanding educational offer of the newly founded university, it also faced several higher education pedagogic challenges.

In the year of its founding, the University of Tokaj focused on the following two challenges:

1. Students of different ages and life experiences must be organized and taught in a unified group.
2. It must introduce educational methods that support its economic and viticulture-oriented training offer.

In this chapter, we show how a new university, which organized its educational activities after the shock caused by the COVID-19 period, answered the two challenges with an experimental method. The experiment is a practice-oriented new approach to cooperative learning [2], which was realized through the joint project work of groups of different ages. The learning effectiveness of the groups participating in the experiment changed as a result of the completely online training during the COVID period. The experiment also laid the foundation for our further developments related to intergenerational education according to the first challenge.

The different age characteristics also induced a new innovative approach to the organization of the university's educational services. The higher education institutions of small towns the size of Sárospatak perform important community service learning (CSL) tasks [3], which is why the campus community is more important here. Within the framework of intergenerational higher education [4], older students can more effectively and better compensate for the shortcomings of their IT and language skills, while younger generations can get to know the work organization solutions and work culture of their chosen field more directly. The best field for intergenerational training experiments is company training, which we studied to organize individual student groups [5]. The intergenerational approach results in an improvement in the quality of education for students (of any age) and an increase in the efficiency of the university. In the experiment, mostly young students participating in higher education vocational training, as members of the project groups, and older students participating in master's programs with wider life and work experience, as project group leaders, formed study groups. The evaluation and further experiments are planned and implemented based on the results also included in the chapter.

2. Scientific background of the educational experiment

The basis of our educational experiment is to be found in countless educational methodological innovations. Our first starting point was the development of ICT (Information and Communication Technologies) tools. This technological innovation has been used in education for more than 20 years, the primary goal of which was to make access to information faster and more colorful. Later, this goal gradually changed, while at the beginning it was limited to performing the tasks of school administration support systems (managing data sheets, records) and educational organization databases (diaries, curriculum, timetables, etc.), by now it has already wormed its way into many classrooms. In the beginning, it prepared the lesson preparation, then it served to make the illustration and education more colorful, and it serves to this day [6]. Equipping the classrooms with VCRs and televisions significantly improved the visualization of course content, and later computers, projectors, and interactive whiteboards enhanced the learning experience.

We can say that the development of ICT brought a breakthrough in the methodological renewal of education. In recent decades, the strategic goal system of higher education has developed together with the technological and methodological innovations of the education sector. Today, the main goal of using ICT tools in higher education is to use technology to make the learning process in increasingly heterogeneous groups more successful [7]. Primarily by supporting differentiated teaching, increasing students' attention, increasing their endurance, and maintaining their motivation, and secondly by supporting their academic progress with various data-based services [8]. So technology is just a tool that provides new opportunities. During the COVID period, access to technical literature in electronic format and the appearance of video teaching materials increased perceptibly.

The experiment was based on experiences gained at another, former university (Corvinus University of Budapest) by my research group. These experiences were gathered during the COVID period, from which new phenomena were discovered, but of course, no general research findings could be made. One of our findings was that the COVID period has seen a greater emphasis on video-based educational solutions. In designing our pedagogical experiment, we investigated the relationship between the pedagogical preparation of the lecturers and the video-based teaching method used.

The row numbers in the six columns of **Table 1** show the individual teaching competencies and the rows with four letters represent the instructional video methods used by the lecturers during the COVID period. Where the teaching competency is found, 1 point is given for the video method. We defined the assessed teaching competencies based on common elements that can be identified in the practice of 10 countries [9], as follows:

1. getting to know some of the students;
2. getting to know student groups;
3. planning pedagogical processes;
4. management of the educational process;

- 5. evaluation of the pedagogical process;
- 6. communication, relationship with the participants of the pedagogical process.

The video is below in terms of execution we found categories during the period under COVID:

- A. full lesson video recording or streaming,
- B. short production of instructional and presentation videos,
- C. presentation by voiceover,
- D. other: classic classroom, practical example solved on the blackboard.

The study shows that the production of short instructional videos required the most pedagogical work, but none of the video methods was suitable for getting to know individual students. To achieve this, it was necessary to use support systems that are available in the university environment. Practically, we chose from platforms that are already proven in correspondence education, in particular Coedu, CoSpace, Google Classroom, Microsoft Teams, and Moodle.

The choice of platform was based on the theory of programmed education. Skinner formulated in his 1954 work “The Science of Learning and the Art of Teaching” that an activity that is reinforced is much more likely to occur in the future than one that is not followed by reinforcement. He developed his linear programming technique by validating this psychological principle. We also built our methodological experiment on the principles of programmed education. These principles are as follows: assigning tasks in small logical steps, activating students, as learning is most effective when students are actively engaged, constant feedback, which also serves to maintain motivation, and practice, which helps to ensure that the studied material is long-lasting [10].

The flexible frameworks developed by IT professionals made the practical utilization of these theoretical results widely available. The implementers of the nearly 70-year-old “programmed educational theories” have received a new and effective tool. Based on our judgment and experience, Moodle is the platform that best meets the needs of a higher education institution.

With Moodle, we can get a technological background with which we can create a unique curriculum and use cooperative and adaptive tools.

	Identified teaching competencies						
	1	2	3	4	5	6	Altogether
Application of video elements during COVID	A	1	1	1			3
	B	1	1	1	1	1	5
	C	1	1	1			3
	D	1	1	1			3

Table 1. Cross-evaluation of six teaching competencies and four video production methods (own editing).

The use of ICT tools is closely linked to blended learning (BL). Blended learning's educational history goes back more than half a century. As BL developed, it became clear that these systems are suitable for educational organization tasks, so they became an integral part of education. Previous studies have shown that the classroom experience can be enhanced by using ICT tools, so this model has been used in higher education together with various ICT-based tools, including Moodle, for more than 10 years. Blended learning strategies combine the best elements of online and offline education, increase student engagement and also learning, and online activities improve efficiency, which over time lectures read to a reduction in face-to-face education [11]. As we wrote, BL combines the advantages of online and classroom education; however, the literature does not address the exact ratio of this.

We have observed that before 2019, the proportion of classroom-based instruction and online individual preparation was typically around 80–20%. However, during the coronavirus epidemic, higher education completely “moved” to the online space. From the second half of 2021, the COVID restriction on higher education in Hungary was lifted, allowing education to return to the university campus. COVID gave a big boost to those higher education institutions where BL already existed, as these students had a competitive advantage and were not new to “home office learning.” The majority of experts [11] also see BL as the direction that will determine the future of education. This assertion is supported by the Horizon Report 2022, which points out that hybrid forms of education will become more widespread and replace traditional forms of education, not because of necessity, as during the epidemic of the coronavirus, but because it will be the new trend [12].

On this basis, we organized the educational experiment in such a way that 20% of the activities were classroom activities, which were primarily limited to organizing knowledge and clarifying practical questions related to the implementation of the group project. The other 80% were online activities such as planning, knowledge acquisition, group and task organization, control, evaluation, and reflection that were documented in the Moodle system.

3. Presentation of experimental education

3.1 The participants

The “educational experiment” took place at the Department of Entrepreneurship Development of the University of Tokaj-Hegyalja, with the involvement of students studying at three different levels of education: students participating in the higher education vocational training (HEVT) in viticulture and enology (11 students), in the bachelor's degree in viticulture and enology engineering (3 students), and in the master's program in business development (5 students). The education covered a total of five subjects: R + D + I Basics, Business Innovation, Project Management, Tender and Project Management, and Applied Research Methodology. Students in the Entrepreneurship Development master's program (MSC) studied innovation, project management, and research methodology subjects. The subjects were taught by two lecturers. The individual subjects and training groups are shown in **Table 2**. The increased class loads and the teaching of many subjects with similar content at different levels provided the starting point for the experiment. In the essential part of the experiment, in which cooperation and teamwork were also evaluated, a total of 16 students, who studied in master's programs and higher education vocational

Trainings	Subjects				
	Basic knowledge of R + D + I (2 credits)	Business innovation (5 credits)	Project management (2 credits)	Tender and project management (5 credits)	Applied research methodology (5 credits)
Winegrower HEVT			x		
Viticultural engineering BSC	x				
Business development MSC		x		x	x

Table 2.
Student participation in subjects (edited by myself).

programs, took part. The students participating in the bachelor's program were only affected by the reflected classroom part of the education.

3.2 Applied teaching methods

As a preliminary adjustment, the students received online course material for each course on the Moodle interface of the department, which helped all students learn the basics of the subjects. In the case of the innovation and management subjects, the preparatory materials ended with an online test, the minimum score of 70% was the condition for the students to be able to participate in the lessons. In the case of the research methodology course, the students received weekly and biweekly online lessons and assignments before the contact class.

To improve understanding, the contact hour part of the blended learning method was followed by online learning, during which lecturers and students deepened their knowledge together using cooperative learning methods. During the contact hours, groups were formed to work together on a joint research project. In total, three groups of six students were formed, each group consisting of two MSC students and four HEVT students, mixed male, and female. The groups were managed by MSC students within the framework of the project management subject. The innovation subject provided the content of their joint project, thus becoming a research management project, the purpose of which was to investigate a realized innovation. The students also received support for managing and implementing the task with the help of the BL method and Moodle within the scope of the research methodology subject.

Based on the programmed education theory, the task implementation was divided into three different elements, control points, during which the students received feedback and suggestions regarding the sub-tasks and results that had been implemented up to that point. Furthermore, each student had to keep an activity log of his weekly activities in Moodle.

The students received grades for the projects, differentiated, and in the case of innovation and project management subjects, an online exam followed, which was also included in the evaluation. The exam questions did not ask about the students' lexical knowledge, but about their practical knowledge. The number and difficulty of the questions differed for the different training levels. For the exam, the students could rely on the shared basic knowledge uploaded in advance, what was said in class,

and the differentiated curriculum for each training level uploaded after the personal meeting.

We examined the success of the students' cooperation and group work with a questionnaire. The cognitive skills model of Davier and Halpin [13] and the interpersonal trust model of McAllister [14] and the cooperative research of Mátyás Bánhegyi and Balázs Fajt [15] helped in formulating the questions. At the beginning of the semester, we filled out an input questionnaire consisting of classic Likert scale-type questions (15 questions in total) with the students, which examined the students' attitude toward group work, taking a role in joint work, and joint problem-solving. These 15 questions were included in the final questionnaire at the end of the semester in the same way, which was supplemented with additional questions related to the use of the department's Moodle system. We asked students in what way did this system help them to cooperate and achieve the tasks, and how much keeping the activity diary encouraged them to complete the tasks. The final questionnaire was supplemented with three open questions requiring long answers, which asked about intra-group communication, group efficiency, and value creation. Finally, the investigation concluded with an in-depth interview with the two MSC leaders of the three groups, in which both the project implementation and the group work were evaluated.

3.3 Cooperation between students

The students implemented their research management project in groups of six. Each group consisted of two students participating in the master's degree in business development and four in the higher education vocational training in viticulture and enology. A total of three groups worked on one project each, which examined a realized winemaking innovation. Students with different attitudes and knowledge participated in the groups. It was necessary to create a minimum knowledge base for the group participants, since if they do not have adequate background information, their participation in the group work may differ in that case [16]. This was the purpose of the course material uploaded to Moodle, the related knowledge test, and the contact course. The advantage of learning in mixed groups is that the division of work between students starts. The participants had different skills and knowledge. In the present project, the viticulturist and oenologist students represented the specialized expertise related to viticulture and oenological innovation, while the MSC students in business development were in charge of the economic competencies. Previous studies have shown that teamwork is most successful when everyone focuses on exploiting their strengths during implementation. During group work, the participants move out of their comfort zone, while at the beginning the individuals feel confused or lost, as a result of the knowledge sharing, they feel smarter and more suitable for the task, so in the end they forge into a well-functioning team [16]. Knowledge sharing and communication within the group started increasingly during the work, which mostly took place through the forum created in Moodle, but the students also used other channels, such as Messenger groups, Skype meetings, telephones, and e-mails. The initially weak interpersonal and cognitive trust also began to strengthen. Cooperation was essential for successful work, as the students were faced with an open-ended problem, the solution of which was unfeasible on their own. It became clear from the student answers that during the group work the HEVT and MSC students felt equal and were helpful to each other. The willingness of the students to cooperate increased more and more, they began to trust each other's

knowledge more and more, and the group leaders were more courageous in entrusting tasks to the other participants.

The HEVT students also revealed that the MSC students helped them understand the innovation topic, and some also considered the MSC students as mentors.

Although based on the answers to the questionnaire, the group work worked well, it became clear during the interviews with the group leaders that the groups of six proved to be large. In the majority of the groups (in the case of two groups), there were one or two people who behaved recklessly. To eliminate this, it is recommended to reduce the group size to four people.

The most delicate part of group work is always the evaluation. How should lecturers evaluate students? Should each member of the group receive the same grade, or should there be differentiation based on something? During our investigation, it was particularly difficult to develop the student evaluation, since students at several training levels had to be evaluated in several subjects. We did not want all group members to receive the same grade for several reasons. On the one hand, we wanted to filter out stowaways, and the students' responsibility and knowledge requirements were not the same. MSC students had to get grades in three subjects, while HEVT students only had to get grades in one. In the case of the project management and innovation subjects, both active participation in class and the end-of-semester exam are included in the final evaluation. Furthermore, a large part of the grade was given by the research assignment to be submitted. In the case of the applied research methodology subject, active class participation, Moodle lessons, and tasks belonging to the lessons, as well as the submitted thesis, were the subject of the evaluation, which was evaluated separately in terms of the three subjects (project management, innovation, and research methodology). In addition, the student groups also reflected on the completed research, and each group prepared a short evaluation of the completed work of another group, which was an additional help in preparing the evaluations. In addition to the activity diaries, the in-depth interviews with the project managers helped to assess the work of the group members.

3.4 Moodle system efficiency

The most important platform for teaching and learning activities was Moodle. Through this, the students received the preliminary study materials and lessons, the knowledge verification tests, and the end-of-semester exams. Furthermore, most of the cooperation took place on this interface, the submission of partial and final tasks of the project, and the lecturer's feedback took place here. The interface was also used to document the entire semester's student work and lecturer feedback and evaluations. Moodle has proven in many cases that it effectively supports the creation of individual curriculum, and cooperative and adaptive learning. So we can say that an educational framework with many possibilities effectively supports learning and serves as a collaboration interface, and last but not least, it makes it easy to monitor and measure the evaluation of learning activities. Previous studies [17] also prove the effectiveness of Moodle as a learning management system. A system that increases student motivation also serves to develop skills that do not belong to the given course or subject (e.g., collaboration, text writing) and improves the general performance of students [17]. Moodle has several incentives and disadvantages, from both the teacher's and the student's side, which are reviewed in **Figure 1**. Among these, we would like to present those that were supported by our investigation.

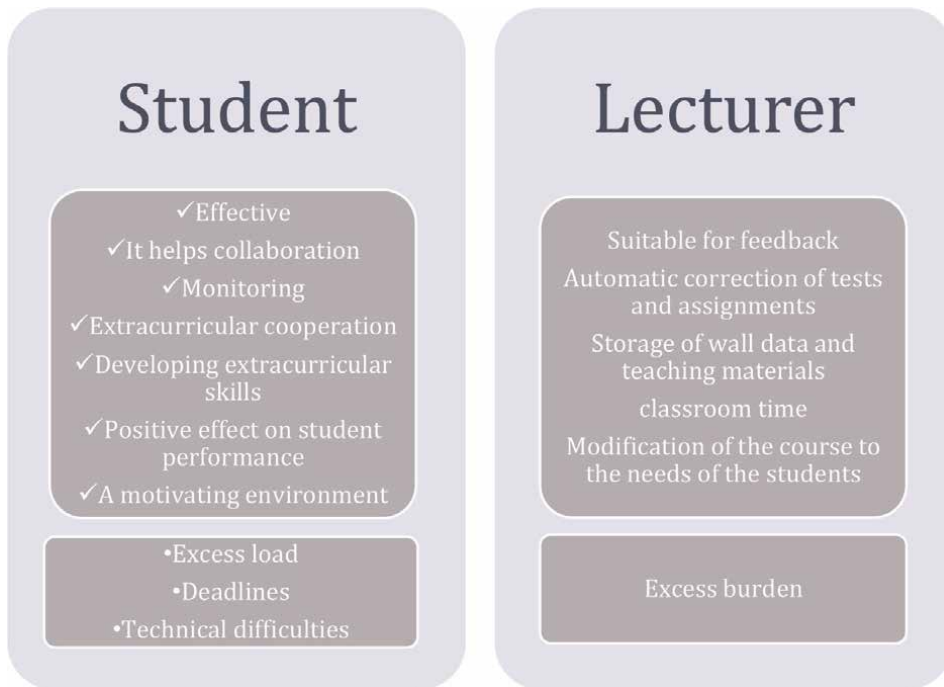


Figure 1. Advantages and disadvantages of the Moodle system (source: [13] based on own editing).

From the student's perspective, keeping the forum and the activity diary clearly enhanced independent and group work, and study materials, assignments, and tests were easily accessible to them. Some technical problems arose for students who had not previously used any content-sharing system, but this was always resolved in time by the quick support of lecturers and fellow students. However, the students experienced the continuous fulfillment of deadlines as an additional burden. During the in-depth interviews, it became clear that if the deadlines for the tasks had not been so tight, the groups would have tended to procrastinate the tasks. With the help of the partial tasks and their submission, the students were able to schedule the tasks better and did not leave the entire task solution until the end of the semester.

Moodle system also had many advantages from the teaching point of view. The teaching materials did not have to be shared with the students one by one, and they were always available to the students after uploading them. The design of the tests was a lengthy process, as we did not want the question bank of the system to contain only true-false or multiple-choice questions, but questions that would allow us to actually measure the students' knowledge based on their mastery of the practical benefits of the subject. However, after preparing a sufficient number of questions, the system essentially generated individual tests for the number of each student, which was corrected immediately, so that the students also received immediate feedback and the lecturers could see the results achieved. The Moodle system made it possible to modify the course and the assignment during the semester in accordance with the student's needs.

4. Results of the educational experiment

By combining the evaluation of the subjects, the students had to carry out a joint large-scale research project in group work. The age of group members was between 21 and 55 years. The cooperation readiness of the students also improved a lot within the unknown intergenerational group, and group cohesion was formed by the end of the task. The students' answers at the end of the semester revealed that they show a greater inclination toward group work than at the beginning of the semester, although many would prefer individual work instead of group work at the end of the semester. However, by the end of the task, the students clearly saw that during group work, the best results are achieved if everyone does their part to the best of their ability during tasks. The answers to the questionnaire at the end of the semester and the interviews showed that apart from one or two stowaways the communication within the group was good and clearly increased as the deadline for the final submission of the assignment approached.

In addition to improving the cooperation skills of the students, the “educational experiment” also brought multiple results. In the field of innovation, both MSC and HEVT students gained theoretical knowledge and practical experience. However, the MSC students needed to share their knowledge and experience with the HEVT students, so according to Bloom's taxonomy pyramid, which can be seen in **Figure 2**, both HEVT and MSC students reached a higher level of knowledge development.

During the semester, the master's degree students in business development acquired the appropriate theoretical knowledge related to the innovation course, which knowledge they had to apply in practice during the project task. However, in addition to practical application and theoretical knowledge, knowledge was also transferred during the mentoring of HEVT students. The HEVT students acquired theoretical knowledge during the course, which they understood with the help of the

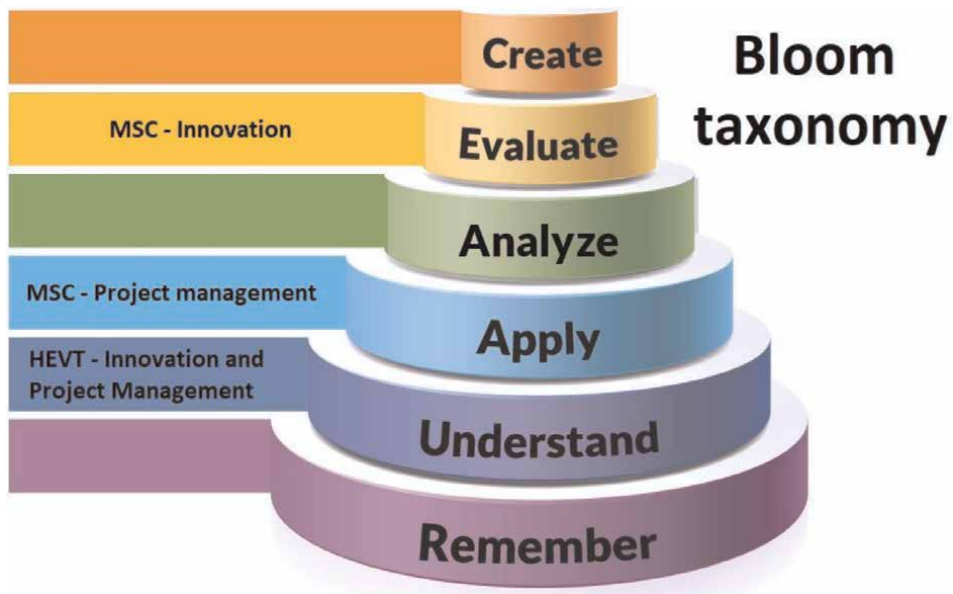


Figure 2. Students' learning results based on Bloom's taxonomy (source: [18]).

course materials, class consultation, and the MSC students, and were also able to apply it in practice during the project assignment.

It is also clear from the student answers that the project task clearly helped the understanding and practical application of the R&D innovation subject. Among the student comments regarding the organization of the training at the end of the semester, in not a single case was there a critical formulation of the online environment that would have been related to the lack of classroom education. The students described the organization of education in this form (20% classroom, 80% online) as flexible and effective.

In the case of project management and applied research methodology, the master's degree students in business development could test the knowledge acquired and mastered during the research project in the form of independent research, thereby reaching a higher level in the Bloom taxonomy pyramid.

With our deductive reasoning, we can draw a conclusion (K) based on the premises (P) below.

Based on the experiment, the premise (P1) can be stated that students who have learning or working experience in an online environment can be effectively taught within the blended learning methodology with an online dominant training delivery rate of up to 80%.

The clear premise of the 2021/2022 academic year (P2) is that during the COVID period, all active students have learning or work experience in an online environment.

Based on the deductive logic, it can therefore be concluded (K) that students active in the COVID period can be effectively trained within the "blended learning" methodology with an online dominant training delivery rate of up to 80%.

It can also be concluded that the fully online-based training during the COVID period improved the learning outcomes of the groups participating in the experiment, as evidenced by the fact that in all age groups and training objectives, students acquired higher competencies than those set out in the training and outcome requirements of the given training.

5. Conclusions and recommendations

During the "educational experiment," it was revealed that with our method certain subject knowledge was transferred more effectively to different target groups and a higher level of knowledge integration was achieved based on the Bloom taxonomy. This improvement was thanks to Moodle, which provided us with effective support. On the one hand, it served as a venue for project work, where students could cooperate and share knowledge with each other. On the other hand, during the exam tasks and tests measuring knowledge before the contact class, it made it possible to create tasks that, based on Bloom, did not help the lexical, but practical use, so the students can apply and pass on the acquired knowledge.

Furthermore, it can be said that the cooperation skills have strengthened among the group participants. In one group, the cooperation within the group worked very well from the beginning to the end, in the other two groups, the project leaders complained about one student each because of rude behavior, but the communication within the group showed a developing trend in them as well.

The study clearly showed that the six-person groups proved to be large, and in the following, it is necessary to maximize the number of groups to four. In this case, more tasks would be assigned to each student, but it would also significantly reduce truant

behavior. It takes a whole semester to complete the project assignment, so the assignments must be handed out during the first third of the semester, and contact hours must be held during the first third of the semester. Due to the longer time interval, however, it is necessary to introduce more sub-tasks and checkpoints, as it was also revealed from the student responses that they would tend to procrastinate.

For the students to feel at home in similar projects and group tasks, it is necessary to involve several subjects and lecturers. With the help of this, the students could have a similar task every semester. If we look at the higher-volume project tasks at the training level, the students can also prepare a portfolio-type final thesis for completing the given course, so completing a project task serves a much more serious purpose than obtaining a semester grade in a given subject. For these higher-level training and subject revisions, the university must have an organization that provides professional assistance to the given lecturer and specialists.


The so-called COVID groups are not a single age group, but a group of students with the same history. In higher education, the impact of the “spontaneous experiment” caused by the COVID world tragedy should be exploited as soon as possible by bringing the proportion of contact (classroom) and online training within the blended learning method closer to 20–80%.

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Perspective Chapter: Organizational Ecology – Evolving Realities in Higher Education from Cholera to Covid – A Michigan State University Planning and Design Case Study

Bin Wen, Jing Zhou, Lijun Hao and Jon Bryan Burley

Abstract

This manuscript is a narrative concerning the evolution of Michigan State University (MSU), the first American Land-grant school and the development of planning and design instruction and research at MSU from the 1860s until the present time, including adaptations in the post-Covid era. Covid is not the first epidemic to influence higher education at MSU, as the school had to adapt to Cholera (1832–1866), Scarlet Fever (1858), Typhoid Fever (1906–1907), H1N1 Flu (1918), Diphtheria (1921–1925), Polio (1916–1955), H2N2 Flu (1957), Second Measles Outbreak (1981–1991), H1M1 Flu (1991), Meningitis (1997 to present), Whooping Cough (2010, 2014), HIV and Aids (1980 to present), and Covid (2020 to present). The narrative presents a depiction of the changing organizational structure/network over time, illustrating the transformations in the sciences, arts, funding, and publication demands with comments, observations, and insights offered by Dr. Burley, FASLA, a now retired MSU landscape architecture faculty member with questions posed by the coauthors. The paper is in the form of traditional historic criticism essays meant to interpret events and activities. To critique does not have negative intent, but rather to bring understanding. The paper illustrates the transition from a German academic model to a diversified free-form education model.

Keywords: landscape architecture, public health, higher education, organizational ecology, environmental design

1. Introduction

Many universities in the United States such as Michigan State University (MSU) have a relatively long history and association with landscape architecture and thus campus planning and design [1]. Over this time period, students and the educational

institution have experienced a number of public health adversities, including: Cholera (1832–1866), Scarlet Fever (1858), Typhoid Fever (1906–1907), H1N1 Flu (1918), Diphtheria (1921–1925), Polio (1916–1955), H2N2 Flu (1957), Second Measles Outbreak (1981–1991), H1M1 Flu (1991), Meningitis (1997 to present), Whooping Cough (2010, 2014), HIV and Aids (1980 to present), and Covid-19 (2020 to present). While the educational setting evolved, the response to these public health situations remained similar until the Covid-19 pandemic. The pandemic may have facilitated a change in the business of higher education from a place-based organization to an evolving distributed pattern. This book chapter describes this evolution from initial beginnings landscape architecture education at the Michigan State campus to the present condition.

2. Beginnings

MSU is widely known as teaching the first full-term semester course in higher education addressing the design of the exterior environment, found in either Europe or North America, taught by Albert N. Prentiss (1836–1896) sometime starting between 1863 and 1865 and was required by all students attending the university [1–3]. Albert Prentiss was a member of the first graduating class at MSU in 1861 and eventually went on to teach and do research at Cornell University. Kansas State University began offering a course concerning the design of the exterior environment in about 1876, and over time, many more schools initiated such coursework [4]. Comparatively, Europe's first university course was taught at Versailles in 1878 [5]. By 1898, a complete undergraduate curriculum at MSU was offered in landscape architecture or landscape gardening as O.C. Simonds (1855–1931) preferred to call the profession at the turn of the century. At the time, the thoughts, opinions, and preferences of O.C. Simonds, a founding member of the American Society of Landscape Architects (ASLA), had great persuasion and influence in the Midwest [2, 6]. The offering of the landscape degree granting program at MSU is older than the ASLA (1899) and older than the first graduate-level program in landscape architecture at Harvard University (1900) [2]. The curriculum and degree were offered through the Department of Horticulture, with the first graduation of a student occurring in 1902, the same time as the first landscape graduation at Harvard. Many of the students in the MSU program, Harvard, and eventually other schools became campus planners and designers as part of their professional practice, such as the first MSU graduate T. Glenn Phillips (1877–1945), who developed a campus plan for MSU [7, 8]. During these formative beginnings, it was a time when the profession was defining itself with several competing visions and approaches. But today, the term landscape architecture has been widely adopted over landscape gardening or landscape engineering and has carved its place within the planning and design professions, addressing any issue where the natural and built environment require thoughtful physical planning, design, and management. Landscape architecture is now being taught in many great universities around the world.

As with any institution, student, staff, and faculty health at an academic institution are of a constant concern. In response to the growing numbers in the student body as enrollment grew, health services were first initiated with in the university's president's home, eventually moving by 1894 into a seven-room home located where the Student Union is now standing [7]. Finally, in 1939, the Olin Memorial Hospital (now the Olin Memorial Health Center) with 60 beds served the campus,

with additions and remodels in 1956 and 1969 [7]. **Figure 1** represents the graphical relationship of the institution's health services and landscape architectural education during the Charles Parker Halligan and Harold Lautner years (1907–1972) as defined by Burley and colleagues [2, 9].

Students worked under the direct supervision of a faculty member at a studio desk within an open classroom environment. This was the classic German model of institutional higher education, where the professor speaks and the students listen, guided by academic freedom, and the arts and sciences, known as the Humboldtian model [10]. Design projects were typically off the campus, comprising parks, residential, commercial, and transportation settings. Faculty, student, and staff health services were in a nearby building on campus.

3. Campus setting as a research laboratory: from design projects to research projects

While most projects were from outside the bounds of the campus, for landscape architects, the campus itself could become a lesson and opportunity to study planning, design, and construction concerning people and environment meaning the university, places, and people that inhabit it. This was the hope and aspiration of MSU when it was founded that students and faculty would engage the world in a scholarly manor to build new knowledge to assist the human condition [2, 11]. When MSU was established, scholarly contributions were seen as unnecessary and impractical by many Michigan residents—the conflict almost closed the school [1]. But over time, the importance of knowledge-building became more broadly accepted and adopted. Building new knowledge in agriculture, biology, and chemistry at MSU was quickly embraced. But it took time for some subject areas such as landscape architecture to become truly a knowledge-building contributor too as the founders of MSU had envisioned. The American Society of Landscape Architects present documentation on the types and extent of research being conducted during the time period 1971–1972 by American-accredited landscape architectural programs; while it shows some activity, it is easy to interpret by the titles, the profession had much to learn about the nature of research, the types of questions that can be asked, and how to analyze data [12]. “I admire the struggles within landscape

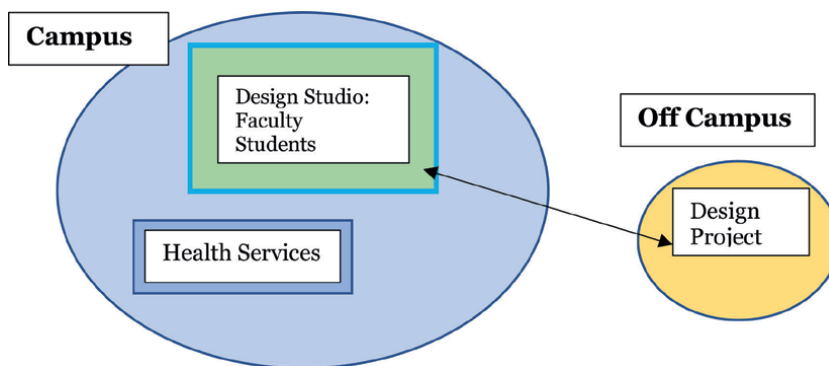


Figure 1. This graphic illustrates the general organizational structure concerning public health and planning and design projects and for education during much of the twentieth century at Michigan State University.

programs to present a scholarly face, but it is clear from the report, there was a lack of depth and some attempts of showing more than really exists. I am sure that the scientific community at each campus could see right through this.” observed Dr. Burley. Back in the 1970s and 1980s, MSU almost lost its patience with landscape architecture. While the program had a highly regarded reputation for professional education, its scholarship production was quite low. After urging and prodding with little progress, MSU considered eliminating landscape architecture from its mission. “I can understand why.” stated Dr. Burley. “Back in 1978, I was a student at the University of Minnesota. I published an insignificant two-page article as an undergraduate [13]. It was more than the total scholarly output of the MSU landscape architecture faculty in 1978 [14]. At best, the total output from the MSU landscape architecture faculty (other than extension materials) was one letter to the editor of Landscape Architecture Magazine. It is not good when a lowly unknown undergraduate from Minnesota “out-publishes” a whole group of landscape faculty at a major Tier I research institution.” noted Dr. Burley. The Urban Planning faculty at MSU were fairing much better in their publication rate [14].

To illustrate the expectations of a Tier I research university, the example provided by George J. Wallace on the MSU campus is an interesting tale. It is not a landscape architecture planning and design story, but it typifies what can be accomplished. It is one of the classic narratives, but often an untold story outside the MSU campus. The research story took place right in the sacred open space circle of the MSU campus, a space identified and protected in a campus 1906 masterplan by Ossian Cole Simonds [2]. The campus had English landscape school settings as an environment to enrich and nurture students (**Figure 2**). But back in the 1950s,



Figure 2. *A view of circle drive near the time period of the work by O.C. Simonds and then T. Glenn Phillips with the sacred space on the right. In the background are a cluster of buildings where landscape gardening (landscape architecture) was first taught at the university level and then begun as a full university curriculum as a continuous program (1898 to the present). The current School of Planning, Design, and Construction resides to the left of the image in a renovated Home Economics Building, now known as the Human Ecology Building. Because of the efforts of George J. Wallace, this landscape has influenced lives around the world (Dr. Burley personal archives, used by permission).*

George J. Wallace, a Michigan State ornithologist conducted his famous study on American robins (*Turdus migratorius* L. 1766) in a landscape that was intended to be passive recreational and intellectually nurturing. Instead it was a research site. He reported upon the devastating effects of DDT (Dichlorodiphenyltrichloroethane). His work was described in a 2008 Emmy winning documentary *Dying to be Heard* by professor Lou D’Aria and his students in MSU’s Knight Center for Environmental Journalism and first told in an editorial article by [15]. Wallace’s research was one of the featured studies reported by Rachel Carson in her book *Silent Spring* [16]. Without the research efforts of individuals such as Wallace, Carson would have had little evidence to illustrate her position. Carson’s book has been described as one of the top 25 most influential books concerning science of all time [17]. The connection to a campus landscape and research upon that landscape is an interesting story. The campus itself is a place to discover and learn. No longer does one just learn the ideas and thoughts of scholars from far-away places and times, but the new discoveries occur right on campus.

Similar ideas about the education setting being a place of knowledge building and learning addressing the environment were presented by Honeyman and Honeyman [18]. Their planning and design setting as an elementary school in Washington, D.C. Thus the transformation was occurring in some educational settings for elementary kids and was to occur at MSU too.

To initiate the change at MSU, Dr. Jo Westphal was hired in the 1980s. And times have changed, now the MSU faculty are in the top 10 in scholarly citations for landscape architecture programs in the USA and in the top 20 in the world, a real transformation. “And this transformation has happened at many Big Ten, PAC 12, and land-grant universities with landscape architecture programs in the United States and across the globe from Indonesia, Taiwan, P.R. of China, Thailand, Philippines, S. Korea, and Japan to the United Kingdom, the Republic of Ireland, Iceland, Australia, New Zealand, the Netherlands, Belgium, France, Portugal, Germany, Norway, Sweden, Italy, Estonia, Finland, Austria, Turkey, and Canada, plus many other locations,” observed Dr. Burley. “Schools like Texas A&M University, Rutgers University, University California Davis, University of Guelph, University of Maryland, Michigan State University, Arizona State University, University of Minnesota, University of Illinois, and Utah State University are the leading North American universities in landscape research. It is a very different list than the respondent perception surveys reported by DesignIntelligence. The perception of individuals in the profession responding to perception surveys have not kept pace the changes and realities in academia,” advised Dr. Burley [19].

Michigan State University campus became an environment for planners and designers to study and to generate new knowledge in planning and design. The following passages and pages describe research and projects in this new organizational model. Because it is relatively new to the profession, it may be worth some time exploring a few pertinent examples.

Recently, Rachel Wilke, a landscape architecture student at MSU earning her master’s of environmental design, studied an open space near the International Center, along the Red Cedar River with remote cameras to investigate open-lawn chair use (**Figure 3**) and placement by students [20]. The study was reminiscent of the effort by William Whyte studying urban plazas in New York City with celluloid film [21]; but today, visual data can be collected remotely and entered into a computer for further analysis. It is a very useful tool and can be widely applied in spatial studies, especially in the social sciences. Dr. Linda Nubani, a past president of the Environmental Design

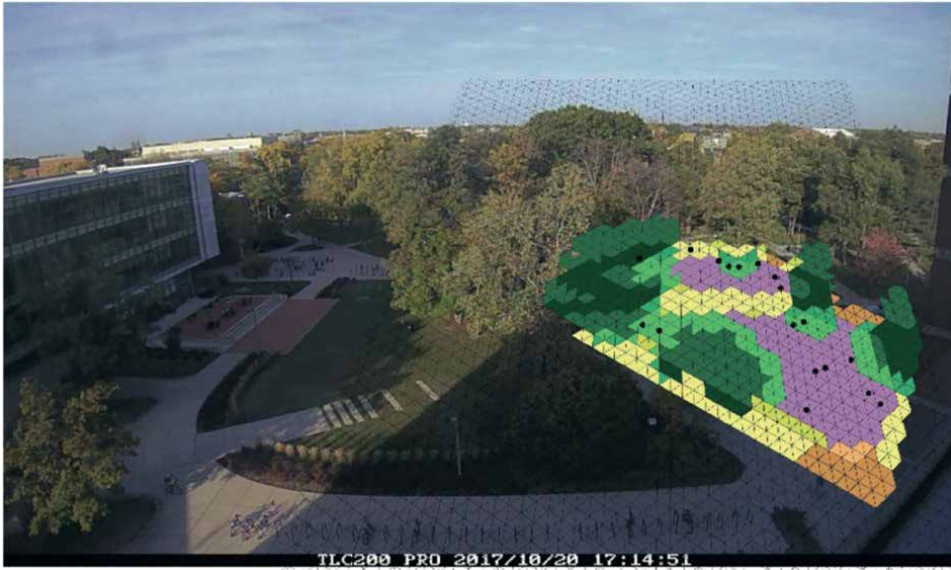


Figure 3.
An image of Rachel Wilke’s study area from a remote camera with an overlaying study grid (copyright © 2019 Rachel Wilke, all rights reserved, used by permission).

Research Association (EDRA), MSU Interior Design, School of Planning, Design, and Construction faculty member, and Rachel’s major committee member stated, “I have enjoyed how Rachel Wilke based her research on William Whyte’s methods of the use of time-lapse photography in analyzing human behavior around nomadic chairs on one of our campus’s plazas.” Dr. Burley further noted, “I had met William Whyte at the University of Minnesota in about 1977 or 1978 when he showed his films of people in plazas. Today the general methodological premise is the same, but the tools have advanced.”

Like many great universities with talented and ambitious landscape architecture students, the students and faculty at MSU participate in many kinds of planning and design competitions and projects. Amada Wakefield, another MSU landscape architect earning her master’s of environmental design, participated in a team that won first place in the 2019 National Association of Home Builders Student Competition in Las Vegas, Nevada, for a site in Oklahoma. The team comprised a landscape architect, an interior designer, and construction management students, led by construction management, School of Planning, Design, and Construction faculty member Dr. George Berghorn. “Having an integrated NAHB student competition team comprised of both construction and design students not only embodies the principles of the School of Planning, Design & Construction (SPDC), but strengthens the connections among our students and among our faculty. This experience gives our students the opportunity to see how integrated design and construction planning happen in the real world and adds a real strength to our programs,” stated Dr. Berghorn. Another project that Dr. Berghorn was involved with was Sparty’s Cabin (**Figure 4**), a mini-home/tiny house initiated by an MSU interior design student, Tiffany Pupa, and involved many students in SPDC. Schools with planning and design faculty and students are very busy in many engaging ways. Academia is much more than lectures and



Figure 4. *Sparty's cabin in the MSU Breslin center (copyright © 2016, Dr. Jon Bryan Burley, all rights reserved, used by permission).*

studios with students biding their time until they can enter the profession, although there is an abundance of lectures and studio projects too.

The campus is often a setting for students to develop their professional skills in planning and design in other ways too. Na Li and Yiwen Xu, both landscape architecture students and who also each earned a master's in environmental design, headed an interdisciplinary team to develop spaces for students and to manage water. The effort earned second place in the Environmental Protection Agency's campus stormwater storm water challenge in 2013 (**Figure 5**). Dr. Burley was the campus advisor for the competition. "It is always a pleasure to work with such great, talented, and motivated students," notes Dr. Burley. Na Li is an excellent artist and conducted an ordination of designer, artists, and instructor principles to create landscapes, drawings, and paintings [22]. Her ordination discovered the drawing instructors emphasize line, landscape designers emphasize composition, and painters emphasize color. Yiwen Xu investigated an ordination of traditional Chinese landscapes and modern Chinese landscapes. She reported that traditional Chinese landscapes are tightly grouped around a common point, attempting to create similar environments, while the modern designers are all widely dispersed creating individually unique environments ranging from softscapes to hardscapes [23]. Yiwen's research won an award by the Michigan Chapter American Society of Landscape Architects. Na Li and Yiwen Xu teamed with Hongwei Tian and others to study design alternatives associated with the MSU medical campus in Grand Rapids, Michigan [24]. This study also earned a Michigan Chapter ASLA award. Studying the campus involves more than just landscape architects. Kristy Kellom, an interior design Ph.D. Student and instructor, in the School of Planning Design and Construction, is studying safety related to active shooters and has won two Environmental Design Research Association (EDRA)



Figure 5. A virtual image of a portion of the entry by an MSU for the Environmental Protection Agency's campus stormwater challenge in 2013 (copyright © 2013 Brock downs, Na Li, and Yiwen Xu, all rights reserved and used by permission).

posters in the student competition (**Figure 6**). Recent high-profile incidents have spurred increased discussion surrounding preparedness against active shooter impact. The purpose of this research is to evaluate an existing educational facility regarding preparedness against active shooter impact and to propose safety improvements. Dr. Nubani notes, “Kristy Kellom’s research is aligned very well with the development of the most recent NFPA3000 standards that address the need for preparedness against active shooter incidents. Kellom’s research offered a behavioral analysis of students on a normal day and what design features may help them respond quickly to these incidents and what design features need to be modified.” Dr. Burley adds, “Scholarship in planning and design has certainly been transformed at places like MSU. The visions of the school’s founders is certainly unfolding in a very positive manner.”

The scholarly nature of the MSU setting allows students to study both conditions on the campus landscape as well as environments around the world. Another award-winning Chinese student, Haoxuan Xu studied and compared cemeteries in Michigan and China by ordinating the characteristics of these cemeteries [25]. An interesting award winning social science study was conducted by Ellen Daniels, but not on the campus. She studied queue lines at a theme park in Florida [26]. She believed that the efforts by the theme park to entertain visitors in long lines waiting for a theme park ride coped better while in line through the efforts of entertaining the visitors; however, she discovered that these efforts only accounted for 20% of the variance.; instead, she discovered that fatigue throughout the day was a better predictor of visitor’s experience waiting in line. As the day “wore-on,” the visitors experienced fatigue. The study revealed the importance of recovery environments to relax (play miniature golf, swim, eat food, enjoy an event, walking in gardens, converse with family and friends) were important features in the total experience, maybe more important than entertaining visitors during their time waiting in line. “Being a good investigator means letting the data reveal the results. Ellen discovered something she did not expect when she conducted the study,” explained Dr. Burley. “She learned about how to conduct research at MSU and did her analysis at MSU, but her study area was beyond the campus. Her study area and the campus are linked together through



Figure 6. A poster by Kellom, K., with advisors Kim, J., and Nubani, L. (2019, may 25). A design-oriented approach of preparedness against active shooters: A case of evaluating a university student lounge. In sustainable urban environments EDRA50. Brooklyn, NY. Environmental design research association (copyright © 2019, K. Kellom, all rights reserved, used by permission).

her investigation. It is an example of how the campus is connected to other parts of the world,” added Dr. Burley.

In another award-winning study, Mengwen Feng, an MSU landscape architectural student and who earned her master’s in environmental design, coming from the Sichuan Province in the P.R. of China, where the deadly Wenchuan earthquake took place in 2008, studied how the composition of the built environment influenced survivor safety. Forty percent of deaths from an earthquake occur after the earthquake. The spatial patterns and conditions of the urban landscape influence survivorship. She studied spatial treatments to improve survivorship [27]. Kathleen Barry, a graduate of the MSU landscape architecture program and a graduate of the environmental design graduate program, studied visual quality in Aspen, Colorado, and determined that visual quality was improved if each location in the town contained at least a partial view of the mountains [28]. Her study earned a Michigan Chapter ASLA award. Wesley Landon, an MSU landscape architecture student studied the paintings of Thomas Moran and how these paintings influenced the establishment of Yellowstone

National Park [29]. The paper won an award together with a French professor, presented by the Michigan Chapter of ASLA. “These students publish their research in conference proceedings and journals earning awards and recognitions. I am very proud of these students. It is a common occurrence,” acknowledged Dr. Burley.

Wade Lehman was a landscape architecture student and a graduate of the MSU environmental design master’s program. He was the first person in the world to develop a validated and replicated multi-species vegetation reclamation plan based upon multi-species fractal patterns [30]. “Wade measured forest stands in the Upper Peninsula of Michigan to develop his multi-species fractal patterns,” commented Dr., Burley. “I thought his work was brilliant, but seems to go unrecognized. Until Wade had done his investigation, no one had developed a science based tree pattern for multiple species, as everyone was just guessing and doing the work heuristically. The jury for his research seemed not to grasp the importance of his work. It seems sometimes investigators have results for questions that practitioners do not yet have. I know this because the late Stanley Hart White (1891-1979) from the University of Illinois invented/developed green walls (Botanical Bricks). It was only after his death that the idea had finally become popular in urban design,” observed Dr. Burley.

Landscape architecture students at MSU participate in a 7–8-week study abroad experience. Based upon this experience, students write and publish papers about the places they visit. Jeremy Monsma (Monsma, Miller and Burley 2011) wrote about Stourhead in the United Kingdom, Eric, Kopinski wrote about his visit to Giverny, France, (Kopinski and Burley 2013) and Villa Lante in Italy (Burley and Kopinski 2014), and Julie Casault wrote about Versailles, outside Paris, France (Casault and Burley 2010) [31–34]. Their efforts contributed to an award-winning landscape history book titled, *From Eye to Heart: Exterior Spaces Explored and Explained*, edited by Dr. Burley and Dr. Trisha Machemer, [35]. Xiao Hou (Mike) was so intrigued during his visit to Paris France, he studied social media and spatial artiaalization suggesting that there were two types of spaces within historic Paris [36]. His research also earned a Michigan Chapter ASLA award. “At MSU, I am so impressed how our students engage themselves in study abroad. Some people imagine that the time is just an extended vacation, but in reality students employ their time wisely to learn and grow on the way to becoming professional planners and designers,” suggests Dr. Burley.

In a final example, Stephanie Onwenu, another MSU undergraduate student and environmental design master’s student, won first place design competition in the City of Detroit “Give a Park, Get a Park” with teammates Monique Basse and Sam Lindquist (**Figure 7**). This project provides a unique approach, through a combined community engagement and innovative design process, to help improve neighborhoods around Detroit. The city will “give a park” to neighborhood residents—a mid-block, decommissioned mini-park will be sold to adjacent community residents, allowing them to increase their stake in their neighborhood. Then, the same neighborhood will “get a park”—a larger park comprised of vacant, city-owned corner lots less than a mile from the former park. Since winning, the team has the opportunity to move forward with implementation of their plan in the Morningside neighborhood. One can learn more about this project here through GAPGAP promo video: https://youtu.be/wzR_B_2zDBI. Stephanie was the College of Agriculture and Natural Resources Outstanding Student Leadership Award winner and delivered the graduation speech at the College Commencement Ceremony. Stephanie’s masters work focused upon “Way-finding Signage and Visual Attentiveness in Detroit Urban Spaces.” Her research study addressed two urban spaces: Grand Circus Park and



Figure 7. City of Detroit “Give a Park, Get a Park” competition board (copyright © 2018, Stephanie Onwenu, Monique Bassey and Sam Lindquist all rights reserved, used by permission).

Philip A. Hart Plaza both located in Downtown Detroit, MI. The study analyzed the visual attentive processing of existing Detroit signage to determine what way-finding signage types (i.e. trail, lamp post, and pavement) within Detroit urban spaces (both open and enclosed layout designed spaces) are visual attentive in winter and summer seasons. Findings from this research study showed both similarities and differences between the visual attentiveness of the way-finding signage types, the urban space layout designs, and temporal structures within urban spaces in the environment. “Stephanie is a wonderful person, dedicated, thoughtful, and imaginative. I am so proud of her. American universities are a much different place than just going to class, training to be a landscape architect. Working at an American university is extremely rewarding. Times have certainly changed since the days of professor Halligan and professor Lautner,” reflected Dr. Burley. **Figure 8** illustrates how the organizational structure had changed.

4. Covid-19 and the restructuring of the educational setting

“In late December 2019, I had family members returning from China, reporting to me that there was a new bird-flu-like/swine-flue-like disease in Wuhan, Hubei, where

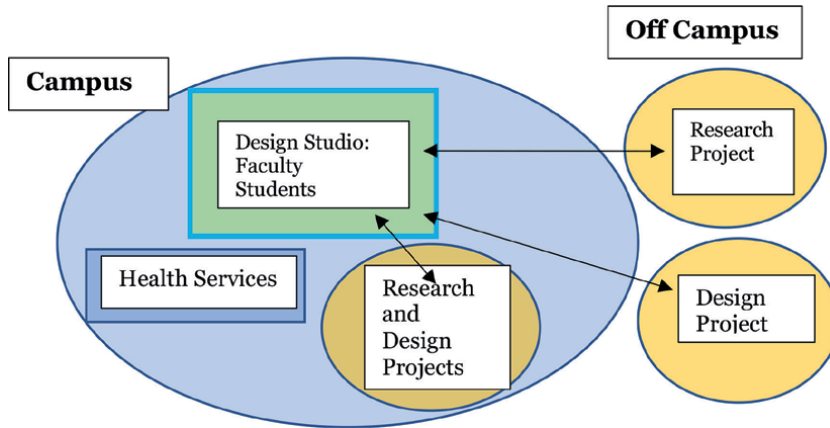


Figure 8. *This graphic illustrates the revised general organizational structure concerning public health and planning and design projects and for education during much of the late twentieth and early twenty-first century at Michigan State University.*

they had been visiting friends. These friends were well connected to the pulse of the city. Before the New Year, I was already preparing plans for my research and courses in anticipation of a potential worldwide pandemic event. I mentioned it to a few colleagues working over the holiday break and their response was that I seemed alarmist. Still, I was unshaken in my impression that this could be serious. As it unfolded the outbreak changed most people’s lives,” recalls Dr. Burley. “By mid-March, MSU had initiated an on-line response with remote learning for most courses; and during January and February I had begun a research study modeling human behavior in recreation settings with a colleague in China, resulting in a publication,” described Dr. Burley [37]. Online courses would continue for the next academic year.

“I had had discussions with colleagues in professional practice concerning what they were doing for communications in their businesses. They told me that video technology was cumbersome and to be avoided. They indicated that the mobile phone with face-to-face interactions was quicker and more flexible,” noted Dr. Burley. “I thought this made a lot of sense. It was immediate and I could draw/edit upon images students would send me and send right back to them. It was like I could be on call almost twenty four hours a day, seven days a week, avoiding proclaiming specific office hours and tiresome video conferencing meetings—call anytime. There was so much negative feedback from video conferencing meetings, and the technology required a good internet connection. I lived in the countryside, where often my internet was down because I had to rely upon a tower and dish to receive a quite weak and slow signal. Rain, wind, snow, and leaves would result in a disconnected signal. I spent my own money extending the receiving line 150 feet in a conduit to get a stronger signal from the tower, still any form of wind or precipitation would render the signal down—it was a nightmare. But my local mobile phone signal provider had upgraded their signal and if I was in the right place in my yard, I could connect ‘fairly-well.’ However, if I tied the phone to my computer in my house, the result was also poor, as I lived with a hill blocking the sight of the tower, so the phone would not improve my internet connection to my computer. Consequently, I was prepared to use a variety offered software: WhatsApp, WeChat, and FaceTime, to talk personally

and immediately to any student, many of whom were in Asia, at home engaging the university long distance,” explained Dr. Burley. “I started my day at 3 AM, as uploading large course files and reading e-mail was more reliable from 3 AM until 8 AM, after that, often I could not send or receive any e-mail until after 7 to 8 PM. I loved living in the restorative countryside, with a large garden by a lake, as landscape is very important to me (flowers, trees, insects, songbirds, small mammals, clean air, sounds of nature, and great visibility for viewing stars), but during my career, I relied on my university office for technology. MSU was very well wired for technology. Yet, now, I was not there anymore in my university office. Since the internet was unreliable after 8 AM, I would write papers and do research from 8 AM until Noon or 2 PM, putting in nine to eleven hour days, seven days a week. In the afternoon, I would have lunch, tend the garden, eat dinner, watch the news and be asleep by 8 PM. It was a good schedule for me,” recounted Dr. Burley.

“This schedule enlightened me to the possibilities of higher education in the future,” explained Dr. Burley. “Higher education was facing issues and problems. To maintain its standing/ranking as an institution, publications and research dollars were driving many academic institutions, as that was how they were measured. In the late 1990s, MSU began moving towards a Stanford model of higher education, with tenure stream faculty doing research and teaching graduate students, and instructors who at the time were not even considered faculty teaching undergraduates [38]. Academic programs that did not generate money were disbanded. MSU was redirecting funds to develop a medical campus and investing in big science, activities that would improve and maintain the school’s ranking. MSU eliminated some top ranked world academic programs because they did not ‘bring-in’ enough money. I cannot fault the leaders of the school, they were ‘looking-out’ for the ‘long-term’ health of the institution. But it did mean a different direction for the school. Before the school was known to have professors in the undergraduate classroom. But as the changes occurred, many senior professors agreed that the quality of education at the institution was diminishing and student tuition was being directed to facilitating the new ‘money-making’ prestigious activities. This change was typical of what was happening in many institutions of higher education. Curriculums were being ‘stream-lined’ and the number course offerings greatly reduced. It became difficult for students to find electives,” delineated Dr. Burley.

“These changes have influenced the perceptions about higher education by those who depended recently graduating students to enter their profession.” observed Dr. Burley [39]. “There is much thought given to what these changes might mean. In landscape architecture, the loss of curriculum in physical geography, soils, surveying, ecology, environmental psychology, and other basics means the landscape architecture may know less about the environment than previous students. In addition, the price of education continues to rise faster than the rate of inflation. Thoughtful leaders are considering abandoning academic institutions and forming new high quality on-line institutions to properly train professionals at a greatly reduced cost to the student. The Stanford model may not be benefitting planning and design professions. Certainly, such considerations are raising tensions between academic administrations and the needs of professions,” commented Dr. Burley.

“The Covid-19 pandemic and now even more recent highly contagious diseases my mean the brick and mortal place-based higher education may see a decline. Certain academic tracks may withdraw from the traditional high education model, something like in **Figure 9**. I must admit that the traditional academic model of paper

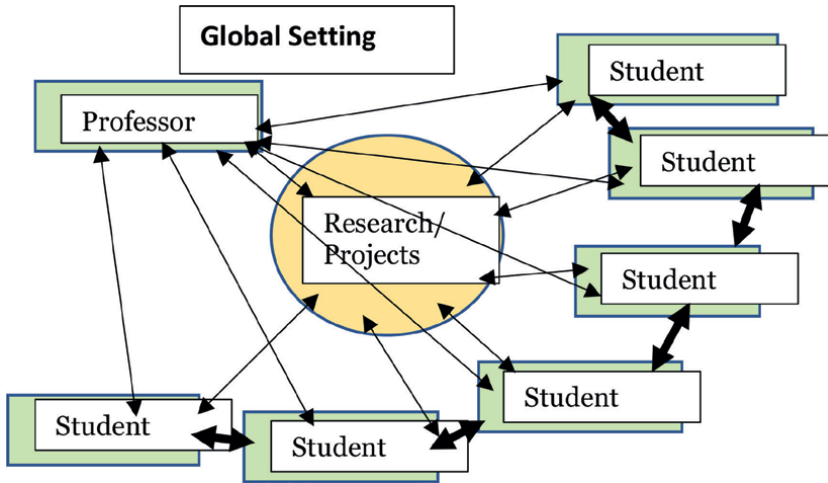


Figure 9. This graphic illustrates a potential new vision for the education of trained professionals.

writing and grant supported research has been a continuing nightmare for planning and design professions. The academic treadmill has been disastrous. Many retiring and resigning academics have very little positive to say about their former institution. Academia is like a ‘never-ending’ hungry child demanding more work hours, restrictions in other employment opportunities, only modest pay, more rules and paperwork, more published research papers, and more research dollars in their quest to maintain standing and ranking. It is sad but quite true. I have been in higher education for 45 years and it is a constant, observed phenomena,” relayed Dr. Burley [38].

If numerous professions follow this model (Figure 9), the impacts would be substantial for institutions of higher learning and on students. No longer would universities be a place to be away from home for young adults, no homecoming, no sports teams to support, no gathering at bon fires and the local pub with friends. The focus would be upon flexible academics from home at the reasonable price. Socialization activities would have to find new approaches. This would not sit well with the expectations of some. For others it would be ideal.

5. Concluding remarks

Changes in higher education have been dramatic. Individuals are considering new models for higher education (Figure 9). The unexpected impacts of Covid-19 may have hastened this change and exposed the realities and problems in higher education. The change may not be immediate, but at least now, there is serious consideration in response to the evolution of higher education for many places around the world. The future of higher education brick and mortar settings may become more similar to Figure 10, an image of a physics collider facility at MSU, conducting big science. A place where there was once many students studying the arts, sciences, and professions may be lost to only a few high-quality professors and their graduate students. The need for a campus as a restorative environment may be lost. The restorative environments may become the residential settings where people live and study. It is indeed a drastic change in the organizational structure of higher education.



Figure 10.
The new and emerging look of the Michigan State University campus, very different from the savanna-like campus it used to be.

Conflict of interest

The authors declare no conflict of interest.

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Sustainable Pathways for SLP Provisioning amid a National Health Crisis: A Newspaper Review

*Darrell Edwin De Klerk, Monica June Palmer
and Alfred Motalenyane Modise*

Abstract

Limited studies provide an analytical lens of students' experiences of access to digital technology in Higher Education Institutions (HEIs) as portrayed by newspapers, particularly during times of a global pandemic, particularly COVID-19. This chapter addressed the question: *What sustainable pathways for short learning programme (SLP) provisioning can be suggested to address access inequalities amid a national health crisis as reflected in South African newspapers?* To avert the potentially devastating effect of the COVID-19 pandemic, whilst still retorting to students' needs, HEIs must consider a kaleidoscope of approaches and implement strategies to effectively deliver online teaching and learning using digital technology. Having applied discourse analysis to articles that appeared in an array of South African newspapers, the findings revealed that access to digital technology and competence in digital literacy might afford HEIs an opportunity to address challenges experienced by SLP students. The findings reveal further that a consideration of such pathways may increase students' access, confidence and performance in online learning activities.

Keywords: access, digital technology, conceptual analysis, sustainable pathways, short learning programmes, COVID-19

1. Introduction

Historically, HEIs were regarded as institutions with immediately available knowledge, conveying it from reasonably elite spheres of information construction to student masses [1]. The goal of HEIs was large to ensure a reasonably precise replication of thoughts formally categorized as knowledge in classroom settings. Democratic societies in the twenty-first century, however, required that HEIs become centres of teaching and learning for self-directed and capable learning for knowledge producers across the entire social continuum. The objective of preparing students to become independent knowledge creators and thus more relevant social actors required a shift from general classroom teaching and learning to a more social educational platform referred to as distance teaching, particularly through the provisioning of short learning programmes (SLP), amongst others [1]. In this context, the shift from learning

in class and learning through online platforms allowed HEIs to bridge the gap in how education can be provided to people [2, 3].

SLP offers prospects for individuals to engage in continuing learning because it considers the notion of situated pedagogy as it has a sturdy bond with real-world connections and with social and specialized [4]. Such connections create connections to prevailing working practices and are aimed at dynamic interventions by participants. Moreover, it is in congruence with workplace settings because trainees bring an affluence of knowledge to the education setting, which may be combined with knowledge from their courses [1].

Digital technology use enhances students' SLP experiences by accessing learning opportunities and instructional approaches they could benefit from. For example, teaching and learning can be customized in terms of content and speed, cooperative and problem-based learning models, and encouraging discussions on their work-based experiences [5]. Furthermore, in HEIs globally, digital connective technology permits students in SLPs to extend learning beyond universities through comfortable and augmented learning experiences using online communities on platforms such as social media and other social platforms [6]. As such, print books and encyclopaedias in the conventional sense are no longer the solitary holders of information, but the information is now spread through the network of linked digital technologies that are intended to provide access ubiquitously, at any time and wherever such networks are probable [7, 8].

Although information and communication technology (ICT) allows several SLP participants to maintain successful and fulfilling lives, countless students in South Africa and worldwide, experience limited access to digital technologies [9]. Differences in exposure to and use of ICT have contributed to the multifaceted, unsolidified concept, the so-called digital divide, often associated with prevailing social disparities [10]. The digital divide has significant concerns: whilst a poorer group of SLP participants may have these experiences, there is a second digital gap in how students from different socio-economic backgrounds use technology [11, 12]. Additional dimensions of digital inequalities include the availability of apparatus, freedom of use, skills, social support, stimulus, commitment and approaches [11, 12].

Similarly, the outbreak and spread of the novel COVID-19 pandemic have contributed to more educational inequities in HEIs globally, forcing universities to institute lockdown measures by closing their doors to contain the spread of the virus. The lockdown process, according to South African newspaper reports, emphasized the existing digital divide within the SAHEIs [13–18]: access to ICT; differences in HEIs within the same country; differences in resources; and differences between students participating in SLP in the same HEIs (those who live in towns and those in rural areas; access to the Internet, when and if it is available). It seems as if access to digital technology has become imperative to ensure the successful provisioning of SLPs, for both providers and students.

2. Digital technologies for SLP provisioning in the twenty-first century

The twenty-first century, described as the Age of Information and digital technology including Google, Microsoft, Apple, eBay and Amazon, amongst others, are just a few examples of how technologies have changed our way of life, communication, thought and social skills [19, 20]. Aside from shifting the actions of individuals, emerging innovations such as computers, smartphones, video games and Internet

search engines are reshaping knowledge construction in that learning, unlearning and re-learning have become the slogan of modern-day education [21]. Digital technology-based teaching and learning strategies, for example, may open opportunities to design new curricula and assessment methods to meet the didactic goals of HEIs [22].

In a study on the relevance of learning with digital technologies in HEIs in Nigeria, Ibrahim [23] found that ICT provides countless benefits whilst enriching the magnitude of the teaching and learning process in HEIs. In another study, Young's [24] research showed that students appreciate the opportunity to pursue education anywhere using education technologies. This versatility has increased learning opportunities for many students who had previous experience disparities in access to digital technology for learning. Finally, the study by Paul and Lal [25] explored the adoption of new technology in education and its impact on students in and around Delhi, India. The results indicated that there is a positive correlation between the strength of digital technology use in SLP programmes and its effect on knowledge generation, learning confidence and performance amongst students [25].

3. Disproportions of access arising from the increasing use of online learning

In an initial use of the word, the digital divide denoted “the gap between those who do and those who do not have access to new forms of information technology” ([26], p. 221–222). Inopportunistly, policy-makers tend to describe the divide by a particular characteristic, generally access, which provides a twisted depiction of the issue. Irrespective of how constricted the gap may seem, technology and its influence on world citizens' lives are increasing, resulting in serious consequences due to the intensification of the digital divide [27, 28]. For the purposes of this chapter, discussions of inequities arising from the increasing use of online learning will be centred on the issue of the digital divide based on access and digital literacy.

3.1 Inequities in access during participation in SLP

Albeit a compendium of research on the inequity of access to digital technology, we draw on Goedhart et al. [29], whose study showcases three points of the digital divide in terms of access and which can be regarded relevant to individuals' level of participation in SLP in HEIs. Firstly, there is a difference between individuals who have and those experiencing challenges regarding access to digital technology. Notably, the gap pertaining to the digital divide seems to be declining. A growing proportion of individuals have gained access to ICT in the last decade, be it in the office, at home, in educational institutions, public libraries or public centres. Secondly, the digital divide emphasizes that ICT use is not guaranteed although access to digital technology might be possible. Research into the second-level digital divide also clarifies the inadequate use of ICT as a result of fundamental public disparities [9, 30, 31]. Individuals' revenue, schooling, literateness and gender are considerably (indirectly or directly) related to physical access, ICT abilities and usage variety [31, 32]. Thirdly, not only are the reasons for ICT use considered, but the consequences related to ICT use are also considered [10, 33, 34].

The afore-going explication is useful in considering the interrelatedness of digital and social inequities in terms of access [29]. For instance, inequalities to access in terms of barriers to digital technology use are associated with issues such as

affordability, linguistics [35, 36], poor ICT literacy [35], lack of awareness [37], time constraints [37] and cultural dissimilarities [36].

3.2 Challenges of digital literacy in higher education

Few scholars agree that digital literacy in HEIs should include a critical understanding of the context of information, media and knowledge production—including not only the limitations and constraints imposed by the design of digital tools, but also the social, legal, political, economic and cultural constraints of the media [38, 39].

Students who develop digital literacy as an integral part of their learning achieve academically in terms of the benefits afforded by digital literacy and are more employable on graduation. Students who are digitally confident can combine numerous inventive educational practices such as flipped learning, digital curation, m-learning techniques and open scholastic resources to their maximum advantage [40]. However, given the propensity that digital literacy requires particular skills, students may experience challenges due to a lack of understanding underlying structures of how information is organized on the Internet [41].

Another challenge may be a lack of understanding information across multiple perspectives and assessing the validity of digital sources [42, 43]. Experiencing such challenges may lead to students creating a particular mindset regarding digital literacy competence in SLP, as they may not value the role of thinking as a component of technology use. Students may also not appreciate that learning with technology is grounded in an ongoing process of inquiry and one's ability to create a pathway for personal learning by searching, assessing and curating information in a complex and often overwhelming digital environment [44, 45].

In the South African context, challenges with and access to digital literacy may signify inequalities within cultural groups, between urban and urban spaces and differences in income which can further intimidate the already marginalized class of individuals [46, 47]. Inescapably, digital marginalization leads to a division of knowledge and limits opportunities for intercultural communication, understanding and networking [48]. Given the undesirable effects of the digital divide on economically deprived and other ostracized groups [47, 48], the gap in digital access and digital literacy should be viewed as critical issues that have consequences for SLP teaching and learning.

4. Implications for teaching and learning in SLP

With its uneven access to electronic tools and abilities, the digital divide implies that hastening to proliferate the provisioning of SLP online would only broaden current inequities. It becomes important to recognize the challenges distance and online learning present to lecturers and course providers. The COVID-19 pandemic has upturned course programmes and online presence, disturbed learning and teaching, exasperated assessment and formal and informal examinations, postponed endorsement of qualifications and will probably affect the careers of many students registered for SLPs. As such, organizing financial and financial resources during times of crises is vital to guarantee complete access to digital technologies and contemporary education tools in the HE domain [49]. Furthermore, managers, learners, programme planners and lecturers must be trained to ensure their willingness to be involved in

expanding digital knowledge. As such, SLP providers need to revisit teaching and learning models to make the best use of digital resources and tools to benefit SLP participants [50]. Two kinds of divide, namely the *socio-economic divide* and *access and the use of ICT*, have implications for SLP in HEIs.

4.1 Implications for SLP provisioning from the socio-economic divide

The use of digital technology is rooted in a socio-cultural context, and as such, students already enter HEIs with a socio-economic deficit [51–53]. This fact is supported by public press opinions in South African newspapers, denoting:

“the socio-economic dimension of the student body needs to be expounded” ([15], p. 1); and “disparities among their students from different socio-economic backgrounds, who struggle to access the digital world” ([13], p. 2).

These perceptions confirm the existence of the socio-economic divide, which may be resultant of the uneven distribution of benefits of ICT, which in turn derives from the use, investment and infrastructure of information technology, amongst others [20, 54, 55]. In countries such as Finland and the United States, the socio-economic divide is correlated with demographic variables such as education, gender and age, as well as computer experience and micro-computer use training at the individual level [54].

Some implications for teaching and learning in SLP provisioning may be derived from the socio-economic divide indicated in South African newspapers. The socio-economic divide suggests that students with less resources and inadequate external help face restricted options and decreased capacity to make successful educational decisions [56, 57]. As a result, socio-economic contexts shape the academic experience of students and how they comprehend themselves and the opportunities accessible to them [58, 59]. In the same way, socio-economic contexts may direct students' thought in systemic ways with implications for educational objectives. In particular, students' experiences with access to more socio-economic resources may indicate that they will have access to increased opportunities for development and growth than students' familiarities in environments with less socio-economic assets [60, 61].

4.2 Implications for SLPs derived from access and the use of ITC

The second kind of digital divide in this chapter is understood as the variances in the construction of ICT use and access, keeping in mind how long-standing social inequities influence perceptions and prospects about educational opportunities [62, 63]. This notion is supported by phrases in South African newspapers that portray the seriousness of digital inequalities:

“poor internet connection” ([14], p. 1); “no capacity to guarantee” ([15], p. 1); “frustrating internet delays” ([16], p. 1); and “limited or no connectivity access” ([17], p. 1).

First, students from disadvantaged populations are similarly deprived of the Internet, with limited access to technology, limited opportunities for use and a lack of important digital skills [64–66]. Second, apparatus inequity recounts conflicting levels of technical and physical proprietorship and access based on the existence

and appropriateness of connectivity, software and hardware [67, 68]. Third, spatial inequalities include dissimilarities in digital exposure and involvement between people from rural and urban areas [69]. As a result, students from marginalized population groups do not benefit from teaching and learning opportunities to the equal degree as more advantaged groups [10, 70].

5. Towards initiatives to address SLP provisioning challenges

SLP provisioning typically has the following characteristics: a partnership between learners who are working in an organization outside the boundaries of HEIs; a programme for learning resultant from the wishes of students relevant to their jobs; students involved in a practice of acknowledgement of their present competencies, skills and knowledge; learning that takes place as an incorporated portion of responsibilities finalized in the workplace; and learning that is assessed by an HEI [71–73]. As such, whilst SLP providers should support students beyond the original distribution of academic material, HEIs with current or synchronized industrialized experience should provide pathways to ensure the continuous delivery of SLP amid the COVID-19 pandemic.

The role of supporting students through complicated and difficult situations (such as COVID-19) has often fallen to faculty and staff. Staff members of HEIs have been on the front lines of responding to the broad array of student needs. Considering the future, and even if a situation that resembles a pre-pandemic higher education is plausible, it is likely that HEIs will have a sharpened appreciation and knowledge of the obstacles and learning challenges that their students face. Therefore, our suggestions, for sustainable pathways to ensure ongoing delivery of SLP amid a national crisis, derived from a conceptual analysis of views in South African newspapers in the beginning of the country's lockdown period. The views in the newspapers are relevant to the aim of this study.

6. Research methodology

In answer to the research question, a conceptual analysis was conducted in which concepts terms, definitions and theories relevant to the research question were explored. A conceptual analysis assists in clarifying the essential features of thoughts and has the potential to elucidate concept design and find explanation regarding the meaning and analysis thereof. As such, concept analysis can be explained as the clarification of the significance of any concept in appreciating meanings about the world and ourselves in relation to a system of additional concepts or learning of what the concept signifies [74, 75].

Whilst conceptual analysis seems to search for reasonably necessary situations in line with the use of concepts, it is also crucial to note that the meaning of other concepts, in relation to concepts to be analyzed, should be bored in mind ([76]; Pirttimäki, 2007 as cited in [77]). We argue that scrutinizing a concept should not be considered similar as describing a word. Analysis aligns with exploring ideas and comprehending concepts rather than only trying to provide delineations of concepts [76, 78]. In research on conceptual analysis of institutional culture, Van Wyk [79] states that a dissimilar but associated manner of explicating a concept is to construct constitutive meanings.

Thus, “when a concept is analysed, the researcher tries to absorb or get inside the viewpoint it represents as a whole and then develop a deep understanding of how its parts relate to the whole” ([80], p. 68). Therefore, the constitutive denotation of a concept cannot be regarded as obvious or simple. Constitutive meanings, therefore, seem to be uncomplicated notions regarding the analysis of concepts to construct meaning. With the latter in mind and taking a hint from Taylor [81], the use of concepts, as derived from views in South African newspapers, can be considered relevant to this study because we intend to put forward suggestions to address SLP provisioning challenges experienced by coordinators and developers amid COVID-19 and beyond.

Fundamentally, conceptual analysis is an effort to acquire knowledge about the uncomplicated tools of understanding concepts, ideas and terms [78]. To gain profound knowledge of what concepts may denote, scholars should distance themselves from the language in texts and not attempt to look accurately at whatever they think is referred to by concepts. Academics, therefore, need to: “bend their focus away from the object of analysis and back onto their own thinking processes in order to become self-consciously aware of the apparently transparent or neutral tools of thinking, understanding and grasping the world that, understands the key concepts of the research field” ([78], p. 425). Du Toit’s [78] observation regarding concept analysis has a dual interpretation. First, “the meaning of a concept that emerges from the analysis of its actual use is potentially very rich and multifaceted” ([78], p. 428). Second, we argue that a conceptual analysis may be beginning to expose manifold meanings of concepts used in this study.

6.1 Sustainable pathways for SLP provisioning

Whilst COVID-19 is a temporary crisis, we argue that it should serve as a wake-up call for HEIs to utilize ways to ensure the provision of flexible educational delivery modes that serve diverse populations of learners. Consequently, we intend to suggest useful practices, which may assist SLP providers in HEIs to deal with inequalities from the increasing use of online learning, given that COVID-19 has no cure and, thus, the length of its effect is unknown. The suggested practices will be derived from concepts in South African newspapers published during the country’s lockdown period and reported on matters regarding online teaching and learning (**Table 1**). The suggested practices will be articulated by means of a conceptual analysis using the following steps [82, 83]:

- developed a pre-defined set of categories—in this chapter, two sets of characters are deemed imperative: “*enabling conditions to increase access*” and “*enabling conditions to foster digital literacy*”;
- translation rules—our rule is that only concepts that has reference to “*access*” and “*digital literacy*” will be extracted from the newspaper articles;
- irrelevant information will be ignored—words like “and” as well as “like”, as they appear by themselves, will be ignored; and
- analysis of concepts towards sustainable pathways for SLP provisioning.

Set of categories	Extracted concepts and phrases	Occurrence (from 07 newspapers)
Enabling conditions to increase access	connectivity	7
Enabling conditions to foster digital literacy	tech-savvy capabilities	3 4

Table 1.
Concepts for analysis from newspaper articles.

6.2 Enabling conditions to increase internet access

We argue that Internet access is an ethical human right that entails that everyone has unmonitored and unrestricted access to this international medium, which should be overtly provided at no cost, especially to those not able to afford it. Rather than being a mere extravagance, access to the Internet should be regarded as an international right because people need to lead minimally decent lives in terms of connecting with others and information in this world [84].

When “connectivity”, significant for Internet access, is highlighted as extremely important for participation in SLPs, Ropolyi [85] educates us that “connectivity” is associated with a particular type of system called a network, which consists of computers that are interconnected and operated in a way which secures the freedom of information of the individuals connected to the network. Individuals become connected when they are able to acquire information in their own space, time and context. West [86] warns that to increase Internet access through “connectivity”, one should bear in mind that it is not just a matter of adhering to administrative regulations. Rather, HEIs should introduce innovative caching techniques and data compression that make broadcasting systems function more powerfully [86]. HEIs can do this through negotiations with network suppliers to provide lines that help automated signals travel reasonably fast, reformatting file servers and installing open-source hardware.

Drawing on West [86], two approaches to improve access through “connectivity” may involve:

- Refining digital structures, particularly in distant rural areas. For example, Google’s Project Loon tries to stimulate access through balloons. Engineers launched 30 balloons over New Zealand in 2013 to test the prospects for connectivity. As a result, people received antennas so they could access the Internet through balloons. The company has now broadened its experiments to include other nations.
- Development of a well-scaled and strong online system—a condition of an effective digitalisation approach is a strong and practical network. Such a network, which is the mixture of the research network and campus networks linked to nationwide and transnational circulation interactions, must be repeatedly developed as a whole and modified to meet the requirements of augmented flexibility, new services, mounting data capacities, the use of in-house services (including systems for study and research administration), unrestricted cloud structures and increased criticality.

If HEIs should address the issue of “connectivity” as suggested above, Internet access becomes the capacity of SLP participants to easier link to the Internet using computer depots, computers, and other devices; and to access amenities such as email and the World Wide Web from anywhere.

Whilst working towards improving “connectivity”, HEIs should consider the following actions, which may be regarded favorable to ensure that SLP developers and participants have increased access [45] to SLPs:

- Communicate to students the minimum technology needed to continue in the programme;
- Provide students with already available resources (at the institution or across different institutions);
- Create a common digital space to share all resources and specify the range of internal and external support available; and
- Provide students with the information on where to seek ongoing technology support, using a digital frequently asked questions (FAQ) list with screencast tutorials customized to user needs.

In creating enabling conditions to increase access to the SLP, HEIs should also develop ways to support students with limited knowledge of how to use digital technology and where to find assistance, if necessary.

6.3 Enabling conditions to foster digital literacy skills

An immediate association with “*tech-savvy*” and “*capable*”, as extracted from the newspaper articles, can be found in Alexander et al. ([87], p. 4) when they argue that digital literacy comprises of “not only skilled” but “capable” digital users in that they are afforded competencies to triumph over challenges. A combination of definitions compiled by a few international universities explained digital literacy as a skill to use digital technology, communication apparatuses or systems to trace, assess, use and create information [88, 89]. Internet users should also be able to understand and use information [90, 91] in manifold arrangements from a comprehensive variety of sources when it is accessible *via* computers. The aim would be to facilitate the expansion of student competences to steer a multifaceted information landscape [92]. The concepts “*tech-savvy*” and “*capabilities*” are explained in terms of “*to use*” because it includes skills such as reflective practice, student-centred learning, student engagement and experiential learning, amongst others [93].

We draw on the works of Hobbs et al. [45] and McGuinness and Fulton [94] to suggest sustainable pathways to foster digital literacy. HEIs may consider the following:

- Create a website, easily accessible to students and SLP developers to share ideas and tutorials;
- Curate a list of high-quality basic tutorials, all available in one place (categorized and searchable by course, programme and discipline);

Capabilities	ability to do something
Connectivity	the state of being connected or interconnected.
COVID-19	a disease caused by a new strain of coronavirus
Digital literacy	capacity to use ICTs to discover, appraise, generate, and communicate information, necessitating both intellectual and practical skills
Digital technology	automated apparatuses, structures, devices and resources that produce, store or process data.
Inequities	lack of fairness or justice.
Learning	acquisition of knowledge or skills through study, experience or being taught.
Online learning	learning that takes place over the Internet
SLP	a course usually aimed at (working) adults and are designed to upgrade specific knowledge or skills in a short amount of time
Teaching	process of attending to people's needs, experiences and emotions, and intervening so that they learn specific things, and go beyond the given.
Tech-savvy	well informed about or proficient in the use of modern technology, especially computers

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The Experiences of International Students Studying in the UK during the COVID-19 Pandemic

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Abstract

This study investigated the experiences of international students studying in the UK during the COVID-19 pandemic by examining how the pandemic impacted their academic, psychological, and sociocultural adaptation. An online survey of 343 international students measured the impact of a range of pandemic-related stressors, including loneliness, and host university support on adaptation outcomes. The results indicated that the pandemic exerted an adverse effect on all adaptation domains. Loneliness emerged as a significant negative predictor of adaptation outcomes, and students who had experienced pandemic-related stressors reported lower adaptation than peers who had not been exposed to these stressors. Group comparisons showed that students who had been offered online social activities, guidance on adapting to remote learning, guidance on housing issues, and advice on how to deal with COVID-related discrimination adapted better than peers who had not been provided with these support measures. We discuss implications for future emergency response strategies in higher education, in particular for student support.

Keywords: adaptation, international students, pandemic, COVID-19, student support

1. Introduction

There are currently more than six million internationally mobile students¹ in the world, a number that has more than doubled since 2007 [1]. These individuals were among the first to acutely feel the impact of the COVID-19 pandemic [2], as countries closed their borders, and universities moved abruptly to online learning. Being “internationally mobile” in higher education (HE) took on a new meaning for students in the academic years 2019–2020 and 2020–2021, with many British universities implementing COVID-19 concessions permitting distance learning from overseas for programmes which would have usually been delivered in-person [3].²

¹ “An internationally mobile student is an individual who has physically crossed an international border between two countries with the objective to participate in educational activities in a destination country, where the destination country is different from his or her country of origin.” (UNESCO, 2022)

² This policy has since been revoked with international students required to transition to blended or face-to-face learning from June 2022 [4].

Many international students were confined to their accommodation, at least for part of their studies, with few opportunities to benefit from in-person interactions with university staff or their peers. With mobility and social mixing curtailed, international students were also denied valuable intercultural experiences inherent to study abroad such as experiencing local life and culture through travel and extra-curricular activities.

A small but burgeoning body of social science research has now begun to assess the impact of the COVID-19 pandemic on the experiences of international students (e.g. [5]), a group which has largely been overlooked in the global response to the pandemic [6] with the initial focus, rightly so, on medical research and vaccine roll-outs. Emerging research studies and academic commentaries suggest that international students across the globe have been adversely affected, and in some cases marginalized, as a result of the pandemic [7]. Efforts to curb the spread of the virus appear to have hit this group disproportionately hard [8]. Restrictions on travel, social distancing measures, and repeated national lockdowns left many international students isolated and with little access to support in situ [9, 10].

Among the many difficulties faced by international students during the pandemic, financial hardship has been well documented both in the academic literature and in mainstream media. Despite measures put in place by several national governments to mitigate the financial impact of the pandemic [11], many international students have been struggling to pay rent and meet their basic needs [7, 12], with hundreds turning to food banks during lockdowns once part-time jobs were no longer available to support them [13, 14], and some even losing access to housing [2]. Additionally, students from Asian backgrounds, especially those from China, have been reporting xenophobic discrimination, scapegoating, as well as physical and verbal assaults [9, 15–17].

Research also suggests that the pandemic has had a negative impact on international students' mental health and wellbeing [18], with many reporting feelings of stress, hopelessness, anxiety, sleep problems, loneliness and depression [6, 12, 19, 20]. COVID-19 related stressors such as uncertainty about future academic plans, economic pressure, and health concerns have been found to be associated with negative mental health outcomes [21], and there is also some evidence that international students experienced greater degrees of anxiety during the pandemic than did their domestic peers [22] or the wider population [19, 23]. Emerging research also suggests that the mental health impact of the pandemic was greater for students who remained abroad during the pandemic compared to those who returned home [6]. Being physically distanced from both their host campus environment and their support system in their home countries meant that international students likely found it more difficult to maintain good mental wellbeing than those studying in familiar environments [9]. Worries about their own physical health and that of family and friends may have exacerbated this distress further [7]. There is also a plethora of evidence that a lack of social connectedness due to remote learning may negatively affect academic success [24, 25].

What is strikingly absent from the literature to date are studies on the impact of the COVID-19 pandemic on the adaptation of internationally mobile groups and individuals, a focus increasingly called for by intercultural scholars [26]. There is a fairly well-established body of research on international student adaptation (see [27] for a recent review), but there has been little systematic empirical research on the effects of the coronavirus pandemic on adaptation with the exception of some studies on the impact of online learning on academic adaptation (e.g. [10]). The current project is one of the first studies with a specific focus on the impact of the pandemic on international students' adaptation.

In the international student literature, ‘adaptation’ is typically conceptualized in academic, psychological and sociocultural terms [28, 29]. Adaptation involves a process of stress and adjustment, typically termed “acculturative stress” which, rather than focusing on solely negative aspects (i.e. “culture shock”), can be viewed as a period of “highs and lows” [30]. Although an educational sojourn abroad is often conceptualized as a positive and transformative experience (e.g. [31]), there is ample research evidence that international students may experience a range of adaptation challenges as they transition into a new academic and sociocultural environment. This can include language and communication issues [32], difficulties in forming social ties, especially with members of the host community [33, 34], feelings of loneliness [35], as well as academic difficulties associated with language limitations, academic content and new ways of learning [36]. It is likely that these challenges were further exacerbated by the ‘high stress context’ [37] of the COVID-19 pandemic.

The aim of this study was to investigate the impact of the COVID-19 pandemic on the academic, psychological and sociocultural adaptation of international students undertaking degree programmes at universities in the United Kingdom (UK). The UK provided an interesting context – it is still among the most popular destination countries for international students globally [1], with 605,130 non-UK students studying at UK universities in 2020–2021 [38], but it is also among the countries worst affected by the COVID-19 pandemic, with more than 20 million confirmed positive cases and more than 160,000 deaths related to the virus as of March 2022 [39]. This study was guided by the following research questions:

1. How has the COVID-19 pandemic affected international students’ academic, psychological and sociocultural adaptation?
2. What was the role of host university support in this process?

This study is grounded in a conceptual model of international student adjustment and adaptation, where adaptation is viewed as three interrelated processes ([27], **Figure 1**). The model builds on Ward et al.’s [29] distinction between psychological and sociocultural adaptation, where psychological adaptation refers to affective aspects such as psychological wellbeing and satisfaction with life, and sociocultural

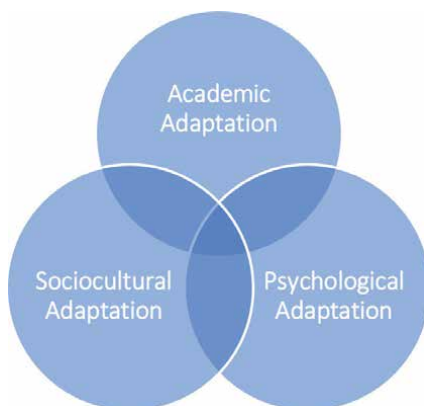


Figure 1.
Conceptualisation of international student adaptation.

adaptation describes behaviors associated with effective performance in the host environment such as carrying out daily tasks. Additionally, international students need to adjust to the demands of academic study and a new national HE system – a phenomenon commonly referred to as academic adaptation [27]. Psychological adaptation is approached here from a stress and coping perspective which highlights “acculturative stress” [30] associated with significant life events, such as an international student sojourn, and the coping strategies required to manage these events [29]. Academic and sociocultural adaptation are viewed here through a culture-learning and social skills lens, which emphasizes the importance of acquiring culturally relevant skills and behaviors to enable the sojourner to function effectively and confidently in the new environment [40].

2. Method

2.1 Participants and procedure

Data were collected through a self-report online survey of international students undertaking degree programmes at UK universities in the academic year 2020–2021. The survey was ‘live’ for one month (mid-April to mid-May 2021). The survey was designed using Jisc Online Surveys (formerly Bristol Online Survey), and a link was distributed through the researchers’ own professional networks in the UK and publicized through various university channels (e.g. social media feeds, university web-pages, internal SharePoint). In total, 348 survey responses were received. Of these, five were discarded as the respondents did not enter any data other than demographic information. The final sample was therefore 343. The majority of respondents (91%) were between 18 and 34 years of age, and more than two-thirds (68%) were female. The most common country of origin was the People’s Republic of China (33%). The sample was linguistically diverse with more than 50 first languages reported by the respondents, and a large majority (86%) were second language speakers of English. Most respondents were postgraduate (PG) students, undertaking either PG taught programmes³; e.g. MA, MSc (41%) or PG research programmes; e.g. PhD, MPhil (27%). Thirty percent were enrolled in undergraduate degrees. At the time of data collection, the majority of survey respondents (70%) were residing in the UK.

2.2 Survey measures

The survey measured a range of factors related to the pandemic, labeled here as ‘impact measures’, alongside several ‘outcome measures’ related to academic, psychological and sociocultural adaptation (**Figure 2**).

2.2.1 Impact measures

Levels of loneliness were assessed using the 6-item shortened version of the De Jong Gierveld Loneliness Scale [41]. The scale included items on social loneliness (e.g., ‘There are enough people that I feel close to’) and emotional loneliness

³ In the UK, a PG taught programme typically includes a nine-month long taught component (September to May) during which students attend classes followed by a three-month long research stage (June to August) during which a dissertation is written.

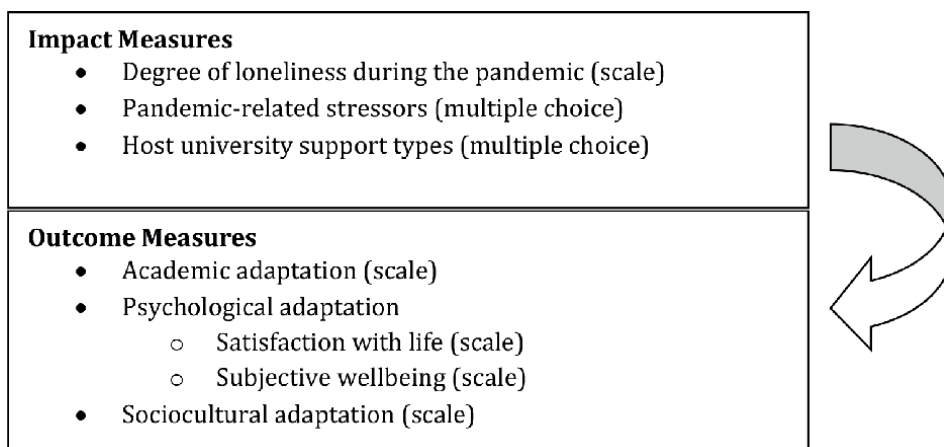


Figure 2.
 Overview of survey measures.

(e.g., ‘I experience a general sense of emptiness’), and an overall loneliness score was computed. Respondents were asked how often they experienced the feeling in each item and rated their answers from 1 (very rarely or never) to 5 (very often or always). Cronbach’s alpha scores for this scale have previously indicated high internal consistency across samples from multiple countries [42].

Respondents were asked to select from a multiple-choice list of pandemic-related stressors (**Table 1**, below). For the purpose of analysis, responses were divided into two groups for each stressor: the ‘yes’ group (those who reported having experienced the stressor) and the ‘no’ group (those who did not report having experienced the stressor).

Respondents were asked to indicate on a multiple-choice list which university support services they had been offered during the pandemic (**Table 2**, below). Responses

	Item	% of respondents reporting this experience
1	Worries about friends, family or partners	71.4
2	Fear of contracting Covid-19	64.4
3	Loneliness	57.7
4	Anxiety	57.4
5	Changes to your normal sleep pattern	51.0
6	Personal financial loss	45.5
7	Fear of giving Covid-19 to someone else	39.1
8	Discrimination from other people	24.2
9	Accommodation/housing-related problems	22.4
10	Visa or immigration-related problems	22.4
11	Not having enough basic supplies	13.7
12	Being diagnosed with Covid-19	8.7

Table 1.
 Pandemic-related stressors and frequencies of responses.

	Item	% of respondents reporting this support
1	Access to online social activities/events	75.2
2	Guidance on adapting to remote learning	66.5
3	Guidance on Covid-related restrictions	57.1
4	University wellbeing support (e.g. counseling)	51.3
5	Guidance on accessing Covid-related medical care	39.4
6	Guidance on visa/immigration issues	28.6
7	Guidance on housing/accommodation	27.1
8	Financial assistance from your university	25.1
9	Guidance on dealing with Covid-related discrimination	18.1
10	Guidance on reporting Covid-related discrimination	15.2

Table 2.
University support items and frequencies of responses.

were divided into two groups for each stressor: the ‘yes’ group (those who reported having been offered a type of support) and the ‘no’ group (those who did not report having been offered a type of support).

2.2.2 Outcome measures

To measure academic adaptation, the Academic Adjustment Scale (AAS) developed by Anderson et al. [43] was used. The 9-item scale included items for academic lifestyle (e.g., ‘I am enjoying the lifestyle of being a university student.’), academic achievement (e.g., ‘I am satisfied with the level of my academic performance to date.’) and academic motivation (e.g., ‘The reason I am studying is to lead to a better lifestyle.’). Respondents rated their answers on a scale from 1 (never or very rarely applies to me) to 5 (very often or always applies to me). The AAS has previously demonstrated high internal consistency in student sojourner samples [43].

Two psychological adaptation measures were included in the survey. The first measured respondents’ satisfaction with life using the 5-item Satisfaction with Life Scale (SWLS, [44]), a common measure of cognitive judgment of life satisfaction [45]. Example items include ‘In most ways my life is close to my ideal’ and ‘The conditions of my life are excellent’. Respondents rated their level of agreement or disagreement on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). An overall satisfaction with life score was computed (see [46]). The second measure was the 12-item Scale of Positive and Negative Experience (SPANE), aimed at measuring subjective feelings of well-being and ill-being [47]. Respondents were provided with a list of six positive and six negative feelings, and asked to rate on a 5-point scale, ranging from 1 (very rarely or never) to 5 (very often or always), how frequently they had experienced each feeling over the past four weeks. Scores for the positive (SPANE-P) and negative (SPANE-N) subscales were computed separately, and an Affect Balance score (SPANE-AB) was calculated by subtracting the negative score from the positive one [47].

To measure sociocultural adaptation, Wilson et al. [48] 11-item Revised Sociocultural Adaptation Scale (SCAS-R) was used. It included items on social

interaction (e.g., 'Building and maintaining relationships'), community engagement (e.g., 'Attending or participating in community activities'), and ecological adaptability (e.g., 'Finding my way around'). Respondents rated their level of competence for each item on a 5-point Likert scale ranging from 1 (not at all competent) to 5 (extremely competent). The scale showed strong psychometric properties in a previous international student sample [48].

2.3 Data analysis

The survey data were analyzed using the Statistical Package for the Social Sciences (SPSS). Alongside descriptive statistics, Pearson's correlations were computed to explore relationships between the impact and outcome measures, and independent samples t-tests with a 95% confidence interval for the mean difference were carried out to examine group differences for the pandemic stressors and university support items. Where the Levene's Test for Equality of Variances was statistically significant, the Welch t-test statistic is reported below. Before any parametric tests were carried out the data were visually inspected for normality using quantile-quantile (Q-Q) plots, an effective way of checking for normality of the data [49]. Data analysis tested the following hypotheses:

- H1a: Degree of loneliness will be negatively associated with international students' academic, psychological, and sociocultural adaptation.
- H1b: Degree of loneliness will negatively predict international students' academic, psychological, and sociocultural adaptation.
- H2: Students who experienced pandemic-related stressors will report lower adaptation than their peers who did not experience these stressors.
- H3: Students who were offered host university support will report higher adaptation than their peers who were not offered support.

3. Results

3.1 Descriptive statistics

Table 3 presents means, standard deviations, and coefficient alpha reliabilities of the survey measures. The mean score for academic adaptation was slightly higher than in a previous student sojourner sample using the AAS [43]. The mean for satisfaction with life in this sample lies towards the lower end of the average score range (20–24) for the SWLS, indicating that 'the majority of people are generally satisfied, but have some areas where they very much would like some improvement' (cf. [46]: 1). The mean SPANE Affect Balance score was relatively low, albeit on the positive side of the range that can vary from –24 (unhappiest possible) to 24 (highest affect balance possible) [47]. Mean scores ranged from –22 to 24, indicating a wide range of wellbeing experiences. The mean score for both the positive and negative subscales sat roughly in the middle of the range of 6 (lowest possible score) to 30 (highest possible score). The mean for the positive feelings subscale was somewhat lower than in previous research on HE student samples, for example 22.05 in Diener et al. [47]. Conversely,

Variable	M	SD	Min	Max	α
Academic Adaptation Scale (AAS)	3.46 (N = 340)	0.63	1.67	5.00	.73
Satisfaction with Life Scale (SWLS)	21.03 (N = 335)	6.88	5.00	35.00	.87
SPANE-positive Subscale	19.92 (N = 334)	4.41	7.00	30.00	.85
SPANE-negative Subscale	17.59 (N = 331)	4.69	6.00	30.00	.91
SPANE Affect Balance (AB) Score	2.34 (N = 328)	8.02	-22.00	24.00	n/a
Loneliness Scale	2.97 (N = 337)	0.78	1.00	5.00	.77
Revised Sociocultural Adaptation Scale (SCAS-R)	3.42 (N = 294)	0.72	1.00	5.00	.89

Table 3.
Descriptive statistics for the survey measures.

the mean score for the negative feelings subscale was somewhat higher, 17.59 compared to 15.36 in Diener et al. [47]. The average Affect Balance score was lower than in other student samples, 2.34 compared to 6.69 in Diener et al. [47]. The mean score for loneliness was roughly at the mid-point of the scale. The mean score for sociocultural adaptation was above the mid-point of the scale but was lower than in previous international student samples; e.g. 3.61 in an international student sample in New Zealand [48] and 4.05 in an international students sample in the UK [27].

The data indicated that students' overall sense of wellbeing suffered during the COVID-19 pandemic, with 41% of respondents expressing concern about their mental health, and more than half reporting that they had experienced loneliness, anxiety, and changes to their normal sleep pattern (**Table 1**). One in four students reported feeling 'very worried' about the COVID-19 pandemic overall, and a majority (71%) had experienced worries about loved ones. One in four students reported having experienced Covid-related discrimination, and nearly a quarter (22%) reported having experienced problems with housing/accommodation during the pandemic. More than half of respondents reported feeling either 'extremely' or 'very' worried about travel restrictions (60%), finding work after graduation (55%) and their academic performance (52%). A considerable percentage of students were also concerned about the economic impact of the pandemic, both on them personally (48%) and on a more global level (47%). **Table 2** lists all university support items included in the survey and the percentages of respondents who reported having been offered them. More than half of respondents had received access to online social activities, guidance on adapting to remote learning, information on Covid-related restrictions, and information on university wellbeing support.

3.2 Impact of Covid-related stressors on adaptation

Hypothesis 1a posited that greater loneliness would be related to lower academic, psychological and sociocultural adaptation. This hypothesis was supported. A Pearson's correlation revealed a significant negative association between loneliness and academic adaptation ($r(337) = -.32, p < .001$). Moderately strong negative

associations were also found between loneliness and the psychological adaptation measures. Firstly, loneliness was associated with lower subjective wellbeing as reflected in the Affect Balance score ($r(328) = -.63, p < .001$). Secondly, loneliness was negatively associated with satisfaction with life ($r(334) = -.55, p < .001$). Finally, a significant negative association was found between loneliness and sociocultural adaptation ($r(294) = -.32, p < .001$).

Hypothesis 1b posited that loneliness would be negatively associated with international students' adaptation. This hypothesis was also supported. Four separate regressions were conducted with academic adaptation, satisfaction with life, subjective wellbeing, and sociocultural adaptation as outcome variables. Firstly, degree of loneliness was a significant predictor of academic adaptation ($\beta = -.32, p < .001$), and explained 10% of the variance in the data, $F(1, 335) = 37.50, p < .001, R^2 = .101$. Secondly, loneliness was significantly correlated with satisfaction with life ($\beta = -.55, p < .001$), and explained 30% of the variability, $F(1, 332) = 140.27, p < .001, R^2 = .297$. Thirdly, loneliness was a significant predictor for subjective wellbeing ($\beta = -.63, p < .001$), and explained 39% of the variance, $F(1, 326) = 210.16, p < .001, R^2 = .392$. Finally, loneliness was a significant predictor for sociocultural adaptation ($\beta = -.32, p < .001$), and explained 10% of the variance, $F(1, 292) = 33.50, p < .001, R^2 = .103$.

Hypothesis 2 posited that students who had experienced pandemic-related stressors would adapt less well than students who did not experience these stressors. This hypothesis was partially supported. **Table 4** displays the descriptive statistics for the pandemic-related stressors with a significant group effect for the adaptation measures. Firstly, students who reported having experienced the following pandemic-related stressors scored significantly lower on academic adaptation than their peers who did not report having experienced these stressors: loneliness (item 3), anxiety (item 4), discrimination from other people (item 8), and accommodation/housing-related problems (item 9). Secondly, students who reported having experienced the

Item 1: Worries about friends, family or partners						
	Yes		No		t	p
	M	SD	M	SD		
SPANE – AB Score	1.67 (N = 237)	7.91	4.09 (N = 91)	8.06	-2.46	.014
Item 2: Fear of getting Covid-19						
	Yes		No		t	p
	M	SD	M	SD		
SPANE – AB Score	1.20 (N = 213)	7.84	4.45 (N = 115)	7.94	-3.57	< .001
Item 3: Loneliness						
	Yes		No		t	p
	M	SD	M	SD		
AAS	3.37 (N = 197)	0.62	3.59 (N = 143)	0.61	-3.29	.001
SWLS	19.63 (N = 195)	6.76	22.98 (N = 140)	6.57	-4.53	< .001
SPANE – AB Score	0.59 (N = 189)	7.94	4.72 (N = 139)	7.52	-4.76	< .001

Item 4: Anxiety						
	Yes		No		t	p
	M	SD	M	SD		
AAS	3.39 (N = 197)	0.63	3.56 (N = 143)	0.61	-2.44	.015
SWLS	19.64 (N = 195)	6.83	22.96 (N = 140)	6.48	-4.48	< .001
SPANE – AB Score	-0.03 (N = 189)	7.39	5.57 (N = 139)	7.73	-6.65	< .001
Item 5: Changes to your normal sleep pattern						
	Yes		No		t	p
	M	SD	M	SD		
SWLS	19.97 (N = 174)	7.21	22.17 (N = 161)	6.31	-2.97	.003
SPANE – AB Score	0.08 (N = 168)	7.89	4.71 (N = 160)	7.46	-5.45	< .001
Item 7: Fear of giving Covid-19 to someone else						
	Yes		No		t	p
	M	SD	M	SD		
SPANE – AB Score	1.05 (N = 130)	7.74	3.19 (N = 198)	8.10	-2.39	.017
Item 8: Discrimination from other people						
	Yes		No		t	p
	M	SD	M	SD		
AAS	3.32 (N = 83)	0.63	3.51 (N = 257)	0.62	-2.43	.016
Item 9: Accommodation/housing-related problems						
	Yes		No		t	p
	M	SD	M	SD		
AAS	3.24 (N = 76)	0.62	3.53 (N = 264)	0.62	-3.63	< .001
SWLS	18.68 (N = 76)	7.95	21.71 (N = 259)	6.38	-3.05	.003
SPANE-AB Score	-0.89 (N = 73)	8.32	3.27 (N = 255)	7.70	-4.00	< .001

Table 4.
Pandemic-related stressors with significant group effects.

following pandemic-related stressors reported significantly lower satisfaction with life scores compared to their peers who did not report having experienced these stressors: loneliness (item 3), anxiety (item 4), changes to your normal sleep pattern (item 5), and accommodation/housing-related problems (item 9). Thirdly, students who reported having experienced the following pandemic-related stressors provided significantly lower Affect Balance scores compared to their peers who did not report having experienced these stressors: worries about friends, family or partners (item 1), fear of getting Covid-19 (item 2), loneliness (item 3), anxiety (item 4), changes to

your normal sleep pattern (item 5), fear of giving Covid-19 to someone else (item 7), and accommodation/housing-related problems (item 9). No statistically significant group differences were found for sociocultural adaptation.

3.3 Impact of host university support

Hypothesis 3 posited that student who had been offered host university support would adapt better than their counterparts without this support. This hypothesis was partially supported. **Table 5** displays the descriptive statistics for the host university support types with a significant group effect for the adaptation measures. Firstly, students who reported having been offered the following types of support scored significantly higher on the Academic Adjustment Scale than their peers who had not been offered this support: guidance on adapting to remote learning (item 2), guidance on Covid-related restrictions (item 3), guidance on visa/immigration issues (item 6), and guidance on accommodation/housing-related issues (item 7). Secondly, students who reported having been offered the following types of support had significantly higher satisfaction with life scores than their peers who had not been offered this support: guidance on adapting to remote learning (item 2), and guidance on accommodation/housing-related issues (item 7). Thirdly, students who reported having been offered the following types of support had a significantly higher Affect Balance score than their peers who had not been offered this support: access to online social

Item 1: Access to online social activities/events						
	Yes		No		t	p
	M	SD	M	SD		
Subjective Wellbeing	2.93 (N = 247)	7.82	0.56 (N = 81)	8.39	2.33	.021
Item 2: Guidance on adapting to remote learning						
	Yes		No		t	p
	M	SD	M	SD		
Academic Adaptation	3.52 (N = 228)	0.61	3.35 (N = 112)	0.64	2.40	.017
Satisfaction with Life	21.63 (N = 224)	6.65	19.81 (N = 111)	7.18	2.29	.022
Item 3: Guidance on Covid-related restrictions						
	Yes		No		t	p
	M	SD	M	SD		
Academic Adaptation	3.55 (N = 196)	0.64	3.35 (N = 144)	0.81	2.88	.004
Item 6: Guidance on visa/immigration issues						
	Yes		No		t	p
	M	SD	M	SD		
Academic Adaptation	3.60 (N = 98)	0.60	3.41 (N = 242)	0.63	2.61	.010
Subjective Wellbeing	4.41 (N = 97)	6.99	1.47 (N = 231)	8.27	3.07	.002

Item 7: Guidance on housing/accommodation						
	Yes		No		t	p
	M	SD	M	SD		
Academic Adaptation	3.66 (N = 93)	0.62	3.39 (N = 247)	0.61	3.66	< .001
Satisfaction with Life	22.89 (N = 93)	6.08	20.31 (N = 242)	7.04	3.12	.002
Subjective Wellbeing	4.71 (N = 92)	6.76	1.42 (N = 236)	8.29	3.39	.001
Item 10: Guidance on reporting Covid-related discrimination						
	Yes		No		t	p
	M	SD	M	SD		
Subjective Wellbeing	4.42 (N = 50)	6.91	1.97 (N = 278)	8.15	2.00	.046

Table 5.
Host university support types with significant group effects.

activities/events (item 1), guidance on visa/immigration issues (item 6), guidance on accommodation/housing-related issues (item 7), and guidance on reporting Covid-related discrimination (item 10). The following support types showed no significant group differences: university wellbeing support (item 4), guidance on accessing Covid-related medical care (item 5), financial assistance (item 8), and guidance on dealing with Covid-related discrimination (item 9). No statistically significant group differences were found for sociocultural adaptation.

4. Discussion

Findings from this study suggest that the pandemic adversely affected international students' sense of wellbeing and satisfaction with life, corroborating what has been found in the international student literature to date [19]. Overall, the students in this study reported lower subjective wellbeing than students in pre-pandemic studies of similar cohorts (cf. [47]), although it was evident from the data that there was a broad range of wellbeing experiences. Students were most concerned about the health of loved ones, travel restrictions, their future job prospects and their academic performance. This pattern is broadly in line with key concerns identified in other studies of the experiences of domestic and international students during the COVID-19 pandemic (e.g., [16, 50–52]). Many also worried about their own mental health, which ties in with other similar findings on the negative impact of the pandemic on the mental health of HE students globally [53–55], although variations do exist between countries [56].

Loneliness was a common experience in this international student sample, reflecting recent evidence of an increase in loneliness during the pandemic in societies generally [57]. Loneliness was negatively associated with all three adaptation domains, and was most strongly correlated with psychological adaptation. This finding is not surprising given that loneliness has previously been identified as strongly related to the emotional/affective aspects of adaptation [58]. A negative association between

loneliness and psychological adaptation has been reported in previous international student samples [59], and there is also evidence for a negative relationship between social isolation and psychological wellbeing among HE students more broadly [60]. It is likely that students who feel lonely or are socially isolated will have fewer meaningful interactions with others, which could in turn negatively impact feelings of wellbeing and satisfaction with life, but also reduce opportunities to acquire the skills and behaviors necessary to adapt socially and culturally [59]. Social distancing and the absence of present-in-person teaching have likely exacerbated this [60], which may also explain the negative association between loneliness and sociocultural adaptation. Students who feel lonely may also find it more challenging to successfully accomplish academic tasks. There is some evidence for a link between loneliness and decreased academic achievement (e.g. [61]) and lower academic adjustment (e.g. [62]).

The data also suggest that students who experienced certain pandemic-related stressors adapted less well than their peers who had not experienced such stressors. Apart from loneliness, anxiety and problems with accommodation/housing had the greatest impact. Students who had experienced these stressors were more likely to report lower academic adaptation as well as lower levels of subjective wellbeing and satisfaction with life. It is likely that students who felt anxious during the pandemic were less able to focus on their studies, possibly resulting in lower academic adaptation. There is some evidence for a link between social anxiety and academic adjustment in HE students [63]. Likewise, anxious students may have been less likely to report high subjective wellbeing and satisfaction with life scores. Anxiety has previously been linked to lower life satisfaction in university students [64]. It also seems plausible that students who experienced problems with accommodation/housing as a result of the pandemic will have been less focused on their academic studies. Given that housing issues are likely to lead to a great deal of stress, it is not surprising that these students experienced lower levels of both academic and psychological adaptation.

The outcome measure most strongly associated with pandemic-related stressors was subjective wellbeing. Students who reported having experienced a fear of contracting Covid-19 or of giving the virus to somebody else were less likely to feel well in themselves. This suggests that concerns related to virus transmission may be associated with subjective wellbeing. This finding aligns with evidence of a link between perceived likelihood of contracting COVID-19 and anxiety, especially among younger age groups [65]. Moreover, students who reported having experienced changes to their normal sleep patterns were more likely to report lower subjective wellbeing, suggesting a link between sleep and international student wellbeing during the pandemic. The importance of sleep quality for good mental health is widely acknowledged [50], and there is evidence of an increase in sleep problems during the pandemic, particularly among young adults [66]. Finally, students who experienced worries about loved ones reported lower subjective wellbeing, suggesting a link between the health of significant others and students' own mental health (cf. [67]).

International students who had been offered certain types of host university support showed higher levels of adaptation. This further corroborates findings on the importance of university support in alleviating students' concerns [68]. Support types that helped students with their adaptation included guidance on remote learning and advice on accommodation/housing issues. Students who had received these types of support were more likely to achieve higher academic and psychological adaptation. It seems plausible that students who are well supported in their transition to online learning will adapt to the academic environment more successfully which could in turn lead to greater satisfaction with life.

Other support types that appeared to ease academic adaptation included guidance on Covid-related restrictions and on visa/immigration issues. Both are likely to reduce uncertainty and contribute to peace of mind, thereby allowing students to dedicate their energy to their academic studies. Support with visa/immigration issues seems especially crucial given that the legal status of many international students on temporary visas made them especially vulnerable during the pandemic [69], often making them ineligible for relief programmes introduced by the governments of their host countries [70].

Host university support played an important role for subjective wellbeing. Students who reported having been offered access to online social activities, guidance on visa/immigration issues, and guidance on reporting Covid-related discrimination rated their subjective wellbeing significantly higher than peers who had not been offered these support services. The importance of online opportunities for social mixing cannot be underestimated given the central importance of social ties in the international student experience more generally [33, 34]. The pandemic and its lockdowns have likely left a lasting impact on the international student cohorts of 2019–2020 and 2020–2021, depriving these individuals of opportunities to form meaningful ties with their peers and the wider host community.

5. Conclusion and implications

This study is one of the first to provide systematic empirical evidence on the impact of the COVID-19 pandemic on international students' academic, psychological and sociocultural adaptation. The findings can help HE institutions in the UK and beyond in shaping evidence-based emergency response strategies for future public health crises and other societal challenges. An effective response strategy aimed at supporting international students with their adaptation during times of global upheaval should have at its core measures to alleviate loneliness and social isolation. This might include structured social support provision such as online networking opportunities, embedded into the curriculum where possible and building on links with local communities. For example, virtual volunteering opportunities could support international students in forming social ties and offer a sense of purpose during periods of social isolation. Second, any future transition to online learning should be underpinned by clear and timely guidance, including regular e-tutorials on online study skills. Thirdly, dedicated points of contact should be made available to international students experiencing visa or housing problems. Fourth, student wellbeing support should be underpinned by a nuanced approach, providing tailored support pathways for students experiencing a range of issues including loneliness, anxiety, sleep problems, and concerns about loved ones. Finally, effective and accessible reporting mechanisms for international students experiencing discrimination and abuse, whether online or in-person, seems especially vital given the prevalence of Covid-related discrimination against Asian students, or people of Asian heritage more generally, in countries hosting international students. There is ample evidence in the literature that discrimination, or perceptions thereof, can have a detrimental impact on the wellbeing of international students [71].

6. Limitations and future research directions

There are some limitations to consider. Firstly, this was a cross-sectional study and can therefore not provide answers on the longer-term impact of the Covid-19

pandemic on international students' adaptation. Longitudinal studies could usefully track the trajectory of adaptation over time. Secondly, it is possible that survey respondents may have chosen socially desirable answers and that the prevalence of loneliness, anxiety and other pandemic-related stressors may actually be higher than is reported here. Finally, this study lacked pre-pandemic comparator data, and it is thus difficult to ascertain whether the prevalence of the stressors and their impact on adaptation was a direct result of the pandemic. Finally, this study was purely quantitative and could therefore not capture more nuanced 'lived' experiences of adaptation. Future studies could use focus groups or individual interviews to obtain in-depth insights into how students themselves felt that the pandemic had impacted their adaptation.

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Conflict of interest

The author declares no conflict of interest.

Notes/thanks/other declarations


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Section 4

Post COVID: The Way
Forward

Toward Sustainable Teaching: Staff Perceptions of the Delivery of a Rural Medical Program during the COVID-19 Pandemic

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and Shane Bullock*

Abstract

What can be learned through teaching and learning in crises, such as bushfires, floods, and the global COVID-19 disruption? How can insights gained be applied to prepare for inevitable future disruption to normal operation, especially in regions identified to be prone to natural hazards? In 2021, focus groups and individual interviews were conducted with academics, clinical tutors, and professional staff members to explore staff perceptions in a regional medical school in eastern Victoria, Australia, about their experiences of teaching and learning during the COVID-19 pandemic. Strategies are suggested to sustain teaching in times of crisis or natural disaster to future-proof against inevitable change including protocols, policy, staff checklists, and staff continuing professional development.

Keywords: sustainability, teaching and learning in disasters, staff voice, preparedness, qualitative research

1. Introduction

A social constructivist approach to research seeks to understand the effects of a range of discourses operating within society—events, realities, meanings, and experiences—on the perceived reality [1]. Qualitative approaches to uncover these connections share the goal of seeking to understand lived experience [2]. Teaching through a global pandemic provides a salient opportunity to explore the lived experiences of staff involved in persevering with the delivery of tertiary learning opportunities during a time of rapid change [3, 4].

In response to the pandemic and to contain the spread of COVID-19, many countries around the world temporarily closed educational facilities [5]. In Australia, the duration and extent of restrictions that impacted education varied across the nation [6], with Victoria experiencing some of the longest restrictions. Medical education was similarly

impacted, with the sudden cessation of in-person classes and clinical placements. COVID-19 necessitated many changes to teaching and learning in higher education. In our study, adaptations to teaching delivery are needed to accommodate the location of students across Australia and the world and in different time zones. A large study of medical students in the United Kingdom showed that students spent significantly more time using online learning platforms during the pandemic and appreciated the flexibility that online learning offered [7]. However, barriers to using online teaching modalities included poor internet connection and family distraction [7].

The sudden lockdown of educational facilities necessitated rapid transition to online teaching. Under normal circumstances, transition to online delivery is met with barriers that delay the development and implementation of the quality online learning environment in medical education [8]. The nature of the barriers was duly amplified during the COVID-19 pandemic due to factors such as isolation from the campus, lack of infrastructure in the home office, and absences of key support staff due to illness.

Online learning and flipped classroom strategies were implemented to continue curriculum delivery of medical education during the COVID-19 pandemic [9]. In medical education, restricted access to the clinical context precipitated a move to simulation-based learning environments. Simulations were also presented in the virtual context. Virtual clinical placements support the continuation of clinical teaching and the development of student competencies and confidence [10].

A study was undertaken in 2021 to explore the perceptions of staff working in a regional medical school about their experiences of teaching and learning during the COVID-19 pandemic. The geographical region in which the research occurred is known for its emergency and disaster profile, including floods and fires [11]. The rationale was to explore strategies implemented to maintain teaching in times of crisis or natural disaster.

2. Methodology

Qualitative research seeks to ask open-ended questions leading with “Why?”, “How?”, and “What?”, to learn about the experiences of participants regarding a given situation, leading to the potential of a multiplicity of findings [12, 13]. The most common methods of qualitative data collection are flexible strategies such as focus groups and in-depth interviews, suitable for identifying unanticipated aspects of a social phenomenon, wherein the participants start to discuss various topics or themes and engage with each other [14]. Video technologies, such as Zoom™, have transformed these methods of data collection, reducing the need to travel [15]. This technology has been particularly useful in conducting research during the global COVID-19 pandemic and in a distributed education context.

This study was considered low risk; the research was approved by Monash University Human Research Ethics Committee ID# 24441. With targeted recruitment, participants were involved in the delivery and support of preclinical and clinical medical training across the region of Gippsland, eastern Victoria, Australia. A list of semi-structured questions was prepared to prompt discussion [12] and to ensure consistency across the different data-gathering sessions. The focus groups and interviews took place via Zoom™, running between 45 and 90 minutes, and were conducted by an independent facilitator. Eleven staff participated: six academics, three sessional clinical staff, and two professional staff members (**Table 1**).

Participants by job description	Numbers
Permanent/Fixed term Academic	6
Sessional Clinical	3
Professional	2

Table 1.
Research participants.

Participants were advised that the sessions would be recorded and sent to a Monash-approved professional service for transcription. As part of the transcript “cleaning” process, the participants have ascribed a code for anonymity. This code was a letter followed by a number “P” for professional staff, “A” for academics, or “S” for sessional staff.

The process of analysis began during the data collection phase as the facilitator conducting the interviews and focus groups began to see patterns emerging [16]. Inductive approaches to data coding and analysis allows codes and themes to derive from the data, not from preconceived ideas [1]. Coding of the raw data was an iterative process, defining the different thematic levels. The code book development was based on handwritten field notes and through the qualitative data analysis software, NVivo™. Rigor was enhanced by using a constant comparison approach [17].

3. Findings

Four themes were identified:

- Rapid transition from face-to-face to online teaching
- Transition from working in a professional/public to a personal/private space
- Re-transition and the “new normal”
- Readiness for inevitable future transitions

An overview of each theme, with representative participant quotes, follows. Under each theme and sub-category, the positives and negatives of the experiences are listed, noting that not every transition experience was negative. Theme 1: Rapid transition from face-to-face to teaching online. The traditional context of medical education is face-to-face. There were challenges across the board in moving to online teaching, including learning the appropriate and necessary technology. Staff stress across transitions was apparent. Adapting to change “Change” was mentioned by many participants alongside the urgent and rapid timeframe:

And there was no time; we, I think it was a Monday, and then it was a Wednesday that we were teaching online. So, there was no time, really, to go “what’s what?”. (S3)

Others spoke of the rapid change with disbelief

I’ve worked for the (university) for 20 odd years; never, ever had I worked from home. So just getting into that routine of going from one end of my house to the other to go to work, that was in itself was weird. (P1)

Learning the technologies

There were some positives to be found in adapting to the new technology:

I guess this time last year I probably didn't know what Zoom was and I'm much more computer literate and feel much more comfortable in this format which has been a good thing for me and so I guess that's a positive that I've learnt new skills that I wouldn't otherwise have had to learn and I've had to communicate with people in this sort of setting. (S1)

There were also challenges:

... we had to put in place systems to enable that delivery that we'd never used before. So, we all did have to learn Zoom, obviously ... I hadn't had time to have any training yet, so I had to train myself in order to set-up Zoom meetings and work through all the glitches that we had. (P2)

The new technology was recognized as having the potential to enhance teaching and learning, but also created challenges. Adapting to online teaching

Many staff spoke about the “trial and error” approach:

The thing was adapting the class teaching to the online environment and, although we had our materials from previous years that we could draw on, we needed to make sure that it worked in an online environment and it was a bit of trial and error to see what would work, what wouldn't work. (A1)

Fatigue, in particular Zoom™ fatigue, was noted by the participants, and became a catalyst for change:

I think (management was) getting feedback that (the students) didn't want to be on Zoom for too long and so then we were getting it filtered down to us that we needed to cut out half an hour or make the sessions shorter. I think that happened a few weeks into the online teaching, we had to cut things and change things around into shorter time frames. (S1)

However, reducing student load increased workload for staff:

... reducing the student load meant that the staff load increased (because) you had to. You were doing it at hours where you normally wouldn't be working or you were repeating things more than you normally would or stuff like that; so, we learnt a little bit, but I think that some of those compromises: good for the students; not so good for the staff. (A3)

Staff related to student fatigue:

Oh, it was fatiguing, and I can absolutely relate to student fatigue when you've had seven hours of Zoom meetings in a day. You can almost not talk; your brain, you're just fried. And so, I guess undergoing that meant we could absolutely relate to student fatigue. (A1)

Physical fatigue was also a consideration:

I found the eye-strain not as bad as the sitting. Long periods of sitting ...So the sitting was what, we would normally teach standing up; I would normally teach walking around, not sitting in a room. So, I found that, and actually, just sitting a lot was very tiring. (A3)

Communication

Communication processes needed to be improved. Disparate information from multiple sources was identified as a problem:

I guess the big challenge for my role was trying to get the information we needed to tell the students. So, communication was the most important part of last year ... As it turns out, ... the day-to-day challenges were in communication. And that was pervasive. (A4)

Online communication behaviors and “soft skill” development for future clinicians were also highlighted:

I'll just echo ... the importance of communication skills, not only in clinical fields but in scientific fields. Certain students tend to use Zoom as a crutch because even more so in the Zoom environment, if they're afraid to participate or they don't want to participate, it's much easier for them to disconnect and even if they do want to participate but they're scared to, in real life they would be forced to talk and participate in a group environment but in the Zoom environment they can just hide behind a chat function which I've noticed quite a lot in my classes (and) it's not really teaching students how to communicate with their voice or with their body actions. (S2)

Teamwork

Teamwork was a positive feature, with many praising collaborative efforts in adapting to online learning:

... we're small and we are very supportive of our students. We (have) a small group of staff and everybody tends to know everybody and when the students have an issue, they know who to ask or they will get support (S1)

The stress of constant change

The pivot of transition between workspaces—that is between working from home, returning to the office, then back home—was problematic for staff. Initially the disruption was anticipated to be a one-off event, yet it was protracted and has led to a “new” normal. One example was timetabling:

... (It) was extremely time consuming. We ended up having four versions of the timetable last year (2020). Pretty much March, when we first started to go into lockdown, the timetable was set for the year. (Usually, there's) just tiny little alterations, normally, that happen ... So, it can still take the odd time, every now and again, but not to the degree of what happened last year. We ended up doing, when we went into lockdown we did fully online. And then we had that tiny glimmer of hope that we'd come back to campus for two days, so we adjusted a couple of weeks based on that and then we ... we only came back for a couple of days and that's when ... we went back into lockdown after that. So, after that we went back to fully online. (P1)

Catalyst for change

Staff saw value in the pandemic-invigorating change. There was an opportunity to reflect on past practice and the rationale for this:

I think re-looking at how you teach ... and how you interact with students is probably the main stuff I got out of it (A5)

Theme 2: Transition from working in a professional/public to a personal/private space.

Social distancing measures and/or lockdowns changed work locations from public professional spaces to the private personal sphere. Work intruded into home lives; personal and professional boundaries blurred. Setting up workspaces

Setting up a home office spanned from:

I had everything I needed. I'm a tech person and so I'm probably an outlier. (S2)

... to ...

Yeah; I had to get a couple of cables; a keyboard; a mouse; I need(ed) to get a proper chair. And I had an old TV monitor that was modified to be an extra screen. 'Cos with the work I do, I can't do it on a laptop; it's just not viable. (P2)

...and...

... I was on a fold-out camp table from Bunnings¹; it was on chocks 'cos it was the wrong height and the table rocked and the keyboard rocked on the table and so ... I didn't want to spend money because I didn't know how long. But then, as we went on, it became, I actually need a proper chair and I need a proper desk and all those sorts of things because we are going to stick to it. (A3)

Setting up to work from home was expensive and defining a workspace could be a challenge:

... you need a place where you need to know your internet is capable; you need to have a desk; you need to have screen and computer. A quiet space because it's very hard to have concentration and teach when there's too much noise going on and some, in some respects ... some noise is okay, but not for students; I think that that's not very fair, so ... having time to set that up (A3)

It was important to establish workspaces that would not interfere with the operations of the household:

I set up really quickly in what I thought was probably going to be the best location in the house, that wasn't going to upset everyone else. It didn't really work, so I did in the end have to change it. And obviously, we went into winter too and it was the coldest part of the house so I was like "I can't do this; I can't be wearing a blanket all day". And ... the set up definitely wasn't what I have now; I wish I had done this in the beginning, but I guess we didn't know how long we were going to be here. (P2)

¹ Bunnings is a large Australian hardware chain store.

Extra domestic disruptions

For staff with partners and/or children working from home, there were further disruptions:

... 'cos you've got (children) at home and they're trying to adapt to a new environment as well; they've not got any social activity happening and they come out of their (room) during their break and then they're disrupting what I'm doing and that's not an intentional thing, but they're trying to adapt to their new environment to suit themselves and it didn't necessarily suit the whole household. (P2)

Internet accessibility and stability

Location was often influenced by internet stability but this was not always reliable. In a rural setting this can be an additional problem. Internet accessibility was a big issue in the transition to working from home:

The big (issue) for probably everyone is the internet and the way that we connect. I live in quite a rural area and I'm not in a town and our internet is not always great and so I don't know how you fix that (S1)

Work often took longer to complete at home. One of the professional staff members described challenges in uploading teaching resources to Moodle:

I didn't notice this until I went back into the office; I thought my home internet was pretty okay; never had any dramas with it ... It wasn't until I went back into the office and I could upload a document to Moodle in about three minutes that at home was taking hours. (P1)

Internet and technology access were also a consideration for student equity:

I suppose making sure that the students have adequate internet is the big one ... Making sure that they have access to support if they need internet help or funding is important. And making sure that they have devices and access to a computer which you assume they do have. But maybe some of them who are rural students are from underprivileged backgrounds and may need (more) support than others (S1)

Reduced travel time

Reduced travel time was recognized as a time and economic saving:

In terms of personal positives, in terms of travel time, there's no real need for the vast majority of my work to actually travel and so I feel like my work has become somewhat more efficient in terms of the amount of actual work that I get done for my role. (S2)

Work-life balance

One participant summed up the challenge of work-life balance:

... for all of us, (it) was a rapidly evolving situation that didn't just affect your working life; it affected every part of your life including personal life, so you couldn't go "oh, it's a difficult day at work; I'll just go home and do my usual relaxation ...". (A5)

Pandemic home-schooling

Juggling other personal roles, for example, parenting and home-schooling, was raised as a major issue across the staff cohorts:

The people that I have spoken to, everyone's story sounds reasonably similar ... I was home schooling ... It was not much fun, I can tell you. (P1)

An extended response from another participant covers the main issues experienced:

... the thing that I found hardest was with the home schooling ... I found, locally, within my local team and my supervisor, there was lots of understanding ... But I found that (the larger university) was depressingly under-helpful ... so, the home-schooling is happening and then you've got this program and this work that you need to deliver for your students; it's not (the university) that suffers; it's the kids that suffer. (A3)

Some participants described how they coped:

I just had to nick between the rooms at times or we would chat. If I was in a meeting, I would chat with him on an iPad and say "I can't talk right now; ... move on to the next one; we'll worry about it later". (P1)

Theme 3: Re-transition and the "new normal".

Further disruption emerged as the virus mutated. University and site-specific orders and lockdowns overlaid this. For example, clearances to return to work came on numerous occasions. Some staff thought that the first lockdown in Victoria, Australia would be a short-term event; others anticipated far-reaching consequences:

I was getting it from everyone (and) I think it gave me a greater understanding of the impact of COVID and some of the things we could start predicting. I was going to meetings ... "it's going to get bad; international travel will stop" (so) I could have those conversations with my other colleagues ... knowing it was going to not go well ... for our international (students) when they started to go home. (S3)

Blended learning

Students advocated to continue blended and flexible learning opportunities:

A lot of students have given me feedback that ... dictating their own learning time is more beneficial ... "the fact that COVID has given me the option ... to listen to my lecture at 2am is a good thing" ... but again, you lose that interaction of in-person. (S2)

Flexibility for staff

Staff also hoped to continue flexible working:

I think I like the flexibility of being able to work at home a little bit; I certainly saved a lot of time in commuting. (A3)

Other gains

Other considerations related to assessment and marking student presentations:

... I've had to mark student presentations and when you're doing that in real life you can get quite panicky, but because with Zoom you can record it, you can go back and view over the student presentation more efficiently (S2)

Increased agency was recognized:

... I sort of feel now that nothing could be on the scale of what we had and I think that we can pretty much do anything. (P1)

This reflection highlighted the aspects that staff and students did not want to lose in the “new normal” teaching and learning context. Theme 4: Future readiness.

The final theme emerging from the data related to preparations for sustainable teaching into the future, capturing the essence of why future-proofing ensures the continuation of quality teaching in inevitable emergencies:

... we're responsible for educating people who are going to be doctors one day and in positions where if they make mistakes or haven't been taught properly then there are devastating consequences and so the staff dealing with the course need to feel that they're valued and well-supported all the way through. (S1)

Good workplace culture

Teamwork was key to success:

... one of the reasons that it went so well is that we ... all get on really well as colleagues and we can have the discussions Paramount, it was: “COVID's here; we can't change that and we have to do the best by our students plus, also, the best by our team”. (S3)

The issue of resilience

Some staff picked up on the notion of resilience and its complexity:

I think resilience is tossed about too much now ... I think framing it as “how can staff manage these issues into the future?” rather than “get resilience” ... So, framing it in a way that is “we just need to do the best we can with what we have; that's all”. (A5)

Considerations for uncertainty

The to-ing and fro-ing of being in and out of lockdowns was a challenge for staff, and related vacillation between teaching face-to-face, hybrid or online, led to consideration of uncertainty in future planning:

... I think that back and forwards until we called it was actually quite hard. At one stage, we went back for one day and you then had to go back to “okay; it's back to online; all the students (go) home” and then we never went back for the rest of the year. (S3)

The constant alternations led to staff exhaustion:

... I think that's actually magnified the issue because people have come in to 2021, we had great hopes; we thought “we'll be sort of semi-normal” but it's not, and I think

people have come in not having had a good break to refresh because we just had to start all over again at the start of the year. Lots of extra requirements; staff shortages. (A1)

The continuous change of regulations was challenging for students too, as related by one of the professional staff members:

... there were a number of students I was dealing with and I'd maybe need to get in contact and say "can you; you need to get this done by a certain date" their immunization. But then they would say "I'm in Melbourne". "No worries; just look into it when you come out of lockdown" and that sort of thing. They didn't need the extra pressure of trying to do more things when they couldn't even leave the house. (P1)

Protocols and policies

There were suggestions to develop a "toolkit" while the adaptations to the pandemic were implemented:

... I think whatever the transition is, it's probably going to be fast; ... being able to say "we have the resources ready to go to roll out in an online environment" and the transition that we've had has done a lot of that preparing. So ... I think it would be good to review the things that worked and to put them into a toolkit ... (A3)

These suggestions would provide a framework for the DISPLAN.² One staff member spoke about the flow chart that they put in place:

So (another colleague) and I wrote a protocol ... So now we've got that in place We should have done that last year (A4)

Others were also keen to capture details while they were fresh in the minds of those who worked during this crisis:

... it doesn't matter what you teach, you can do it, as we've seen. But having some sort of plan of "if we're shut, what are we going to do?" ... So I think a bit of a thought about "how long do you shut before you convert to a new style of program?" And I think, most of the time, it's not going to be an issue. If we have a bushfire, it's rare that we'd be closed for more than a week at a time ... so I think that while it's fresh, there should be a short document ... of how do you frame it? What's the experience with what's been done before? ... a very basic (document) to help people who may not have been around during those times. (A5)

A key issue to consider during crises is in and around clinical teaching, along with exposure to the clinical workplace and real patients:

... a very big problem that we identified in the scientific field (was) that we were literally graduating an entire cohort of undergraduate students who had never stepped into the lab and so ... we're getting a bunch of students who have never touched a pipette (S2)

The clinical educators highlighted the potential for students to evade the practical elements of medical training and the impact this might have:

² DISPLAN is the shortened title for the Victoria State Disaster Plan, Australia.

... (the students) sort of had to teach themselves the physical examinations through videos and online content that was posted, and then they had to videotape themselves doing the physical examination of someone which often were their parents if they were at home ... In some cases it was a pillow because some students were by themselves and didn't have anybody to practice with ... and we had to watch the video and then critique it on a paper based form as well as we had to video ourselves giving them some feedback which we then had to send back to them which was a hugely complicated process. It was good in theory but it wasn't great in reality and it meant that that group of students never really learnt proper physical examination. (S1)

Maintaining clear communication and connection Communications challenges were highlighted:

It's been quite messy this year. Messaging from central faculty has been a bit ordinary in places, and so, yeah, I think they really need to do a better job in terms of getting information out there. It's not good; ... we sort of get mixed messages or we don't get messages and stuff that they're saying is happening doesn't happen. (A6)

Maintenance of clear communication in times of crisis was considered essential. This is related to seeking information:

But one thing I have realised, and I'm sure everyone else would agree, is sometimes it takes longer to get answers when you're at home. So instead of knocking on a door or picking up the phone, one thing can take fifteen emails that could have been resolved a bit easier. (P1)

Novel approaches arose to support students:

What was better last year because of this Zoom and technology environment, it's very easy to organise mentor meetings with this group of students at quite a regular basis. We used Microsoft Teams as well and so what that allowed ... it's really good and the students can set up their own messaging system and if the students had any problems then they just threw it into the Microsoft Teams and a student could help them if the student was feeling generous. And because I was their mentor, I could also help with their queries. So, it gave them a sense of connectivity where there might not be connectivity already. (S2)

This comment supports the notion of virtual casual communication opportunities to help overcome some of the experienced challenges. Another major consideration was finding ways to support student safety, both physical and emotional:

... many who were isolated from their support systems ... we had so many depressed, anxious, teary, some self-harming, unsafe students who, because our hospitals went above and beyond the health department, as far as restrictions go ... (were) more restricted than the healthcare workers. Who weren't allowed to leave ... Or the hospital said they wouldn't be allowed on the wards ... as time went on, being more creative about what we said to enable students to stay mentally safe. (A4)

Another academic staff member also commented on the pastoral care issues that were potentially lost with the rapid transition to fully online learning:

By the time they've hit fourth year it'd be rare for them to have an academic issue; but I've encountered a few personal issues and mental health problems. And it seems to be something that's increasing ... And I guess seeing them face-to-face is a much better way to actually see how they're going and they're much more likely to just drop in and sit in my office and have a bit of a chat if something's going on they're worried about something ... I think, for me, that was the biggest issue. Just that feeling that I didn't connect with them (A6)

For this participant, establishing virtual office hours and having regular check-ins with students online, could provide opportunities for open communication around pastoral care issues, overcoming the tyranny of distance. Dedicated funding

Having a pool of money to access in order to help staff deliver teaching during crises was also a useful suggestion:

... the ones who control the budget, so if they put budget money associated with ... (technology) to support staff that could come in during a time of transition ... "Find me a solution; great; and I'll keep working on the content". I think the central university has a budget role. (A3)

Ongoing professional development for all staff

Continuing professional development of staff for future readiness to continue teaching through emergencies and disasters cannot be under-estimated. A key issue raised by participants was around learning technology, knowing the options available, and how to use these:

I'm not great with technology, so I had to learn to work things that people probably take for granted. Chat bars and stuff like that. But anyway, I got the hang of it. Just boring things like sharing screens and stuff; I'd never had to do it because ... I'd done everything face to face. (A6)

Beyond basic technology use, other challenges included:

... trying to work out ways that I could video myself and make a small enough file to send back to the student and often my internet was struggling with that, and that part nearly drove me insane. It was all good in theory, but the practicalities were difficult ... (S1)

Ongoing staff professional development was suggested as a solution:

... in hindsight, we probably could have had quite a number of different training sessions, but now, look, there's still things with Zoom and Moodle, I'm sure, that I could know about. Especially Moodle, because Moodle's highly temperamental, I find. (A4)

This unreliability was noted by another participant:

And that's a bit of staff upskilling in different types of software or programs that might allow the students to collaborate with each other in slightly different ways ... Platforms where, like I said, where if you're doing an online lecture or whatever, you can engage with them in a more visual way ... so that they know who you are and they have a better personal connection with you. (A3)

This knowledge cannot be assumed, so needs to be developed. A “Skills Check” for professional development opportunities might be a possibility.

In summary, the unprecedented COVID-19 pandemic demanded that clinical and academic staff rapidly transition to fully online instruction. The ramifications for educators and the units’ support teams were widespread. Challenges ranged from technical, logistical, and financial hurdles to program design and delivery, the pastoral support of students, through to more personal impacts on work-life balance. Positive outcomes were also noted including improvement in teamwork amongst the faculty, flexibility in work arrangements, reduction in commute time to work, and a sense of achievement and better preparedness for dealing with future disruptions to educational delivery.

4. Discussion, recommendations, and further research

The recognition of how crises can create opportunities for structural change in the education space for the better, can lead to considerations of what can be done to optimize that opportunity [18]. There is much that can be learned from past experiences of teaching and learning in crises, from the current COVID-19 global disruption, and the preceding acute management of other crises such as bushfires and floods in regional settings. These insights can be applied to prepare for the future and further possible crises, whether these be climate or virus-related or imposed by the Government.

Despite the flexibility of online learning, educators experienced various challenges in applying this teaching mode during the pandemic, including readiness, technology literacy, access to technology, financial difficulties, and health risks [7]. The participants suggest both financial support and the enhancement of professional development activities for staff, alongside access to reliable educational resources beyond the pandemic [19].

While policy and protocols are two elements of the solution when operating in crisis mode, management cannot rely solely on the creation of crisis prevention strategies [18]. What is also required to future-proof educational spaces, is a strategy of holistic resilience [20, 21]. What would a shared understanding fostering resilience in crises look like? Systematic work is required to identify ways that provide for resilient communities, and this also applies to teaching and learning in times of crisis [22].

In Christchurch, New Zealand, the category 7.1 earthquake of September 2010, was followed by another of 6.3 magnitude in February 2011. The second earthquake while of a lesser magnitude was catastrophic, leading to 181 deaths and triggering a state of emergency in the region. This in turn impacted the delivery of education at institutions of higher education, such as the University of Canterbury in Christchurch. Learning from our colleagues’ experiences in higher education across the ‘ditch’³, key factors in sustainable teaching were the ability to respond swiftly and continue delivering teaching and learning without the physical place, due in turn to the infrastructure, pedagogy and capability supporting blended learning that was already in place [23]. These learnings are applicable to our context wherein there are implications for short-term management of crises such as fires and floods, versus long-term chronic management such as COVID-19. Investment in such approaches is likely to result in sustainable practice, such as a mix of flexible and hybrid delivery

³ The ‘ditch’ is a colloquialism in Australia and New Zealand to refer to the Tasman Sea which separates the two countries.

rather than a simple return to face-to-face as the default. While a decade old, the advice offered by Mackey et al. [23] is still relevant and can help institutions of higher education plan and sustain equitable experiences for students in times of disaster or crisis. For staff and students, this advice involves different lenses and questions. Staff:

- How well prepared are staff to implement blended or online strategies independently within a short timeframe?
- What professional development and support are required to ensure staff has the technological capability and the pedagogical understanding to work predominantly in an online or blended mode should the need arise?
- Do staff know how to access files, applications, and other resources remotely?

Students:

- How well-prepared for independent learning would students be if the institution had to shift all teaching and learning into a distance, flexible or online mode at short notice?
- What additional supports or resources might students need to continue their learning activities independently?
- Could students complete alternative location-independent assessment activities if necessary?
- To this we would add in the context of medical education:
 - How would such adaptations be credentialed to support progression to the next stage of learning or to join the workforce?
 - How may these adaptations simulate or substitute clinical placements?

Communications:

- What channels including social networks are ready to be used to communicate with staff and students?
- Do staff and students know about and feel confident accessing these channels?
- Are these channels likely to remain viable in disaster or emergency conditions?
- Is there access to simple technologies that could be used to create instant communications and resources for students (e.g., flip-videos, podcasting)?

Resources:

- In the event of a sudden and extended evacuation from workplaces, how will staff access the materials required to continue teaching?

- How many of these resources are electronic?
- How might cloud computing be utilized to ensure continued access should the institution's infrastructure and servers be damaged?
- Are there adequate off-site backup and disaster recovery plans for electronic material?
- What physical resources are needed to digitize or arrange alternative access (e.g., off-site copies, and mutual arrangements with another institution) for staff and students?

In anticipating crises, not as one-off extraneous events, but rather perceiving them as inevitable and preparing staff for them, by using this list, and from the responses of the participants in this study, we also add what management and leadership might consider. Management:

- Are disaster management policies and protocols in place for staff, students, clinical placements, and resources?
- Are there funds that can be kept in reserve and deployed on an "as needs" basis?
- How might this reserve of funds be distributed? Who are the most vulnerable staff and students in times of crisis?
- What professional development strategies can be implemented to support staff in "transitions"?

In reflecting on the four "Ss" that influence how an individual copes with transitions [24]—situation, self, support, and strategies—most of these considerations are covered in the above list, the final consideration is in and around fostering not only resilience of individuals, but holistic resilience more broadly conceptualized [20, 21, 25]. The final recommendation, therefore, is around the element of resilience. Fostering holistic resilience:

- Does the organization consider resilience as an individual responsibility or is it committed to fostering a broader understanding of resilience that views this as not an individual responsibility, but a quadripartite one [25] reflecting the four Ss?
- How is resilience being fostered in a broader sense across the school and its sites?
- Are staff being given opportunities to participate in professional development to ensure that they are equipped for delivering teaching and learning in a crisis?
- What steps will be put in place to explore how resilient the teaching community is, and what can be done to better promote this?

This list of recommendations may also be the basis of future research on the preparedness of staff to plan and sustain equitable experiences for students in times

of disaster or crisis, in terms of dynamic individual and organizational checklists. It would certainly serve to highlight espoused rhetoric versus theory in practice.

Much more systematic work needs to be done on the identification of mechanisms that provide for resilient societies [22]. Further research will help in understanding the fragile relationship between crisis and change. Finally, it would be prudent to follow up reflectively with staff through the lens of the four “S’s” [24] that influence how an individual copes with transitions in crises.

The study was limited for several reasons. First, it only explored the experiences of staff across regional sites in Gippsland, Australia. Second, the study was conducted at a time when staff had already experienced COVID-19 lockdowns in 2020 and were anticipating a “return to normal”. With subsequent lockdowns in the state of Victoria, Australia, in 2021 due to new viral variants, it became clear that there would not be a “return to normal”, but a switch to a “new normal”. Of this, a hybrid approach rather than a return to fully face-to-face teaching and learning may become the reality, especially with the program delivery for offshore (international) students, and students in the subsequent clinical years given their need for workplace placements. As such, it would be useful to follow up with staff on the main themes elicited in this study. It would also be useful to investigate considerations of the need for students to contribute to surge workforce efforts.

5. Conclusion

This study chronicled the experiences of staff at a regional medical education provider of the modality shifts required by the COVID-19 pandemic. Their experiences reflected the renewal and transformation of curriculum delivery, and the move toward sustainable teaching and learning in a region known for its vulnerability to natural hazards and disasters. In so doing, the research explored some of the barriers and challenges experienced in adapting from face-to-face teaching and clinical placements to an online/hybrid modality. Some outcomes were positive in terms of sustainable practice and equity of access to learning opportunities for students and will be an integral part of moving forward. The findings reinforce the need for checklists to assess program robustness, to harness technology, and for continuing professional development to ensure adaptability of students and staff.

At the point of writing this chapter, the pandemic is ongoing and continues to impact the medical program. There are cohorts of students who are entering and progressing across medicine with very different learning profiles to those that existed pre-pandemic. Considerations of preparedness for, and progression toward practice, are necessary for moving forward. With this in mind, we must not simply prepare for the inevitable rapid challenges that occur during crises, and any related shifts to online and hybrid teaching modalities; we must also be ready for a transformation of mindset [26]. Sustainability of teaching and learning in crises relies on responding to the challenges that arise, as well as recognizing the opportunities that arise.

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Exploring the Professional Development and Improvement Strategies of College Teachers' Skills in the Twenty-First Century in the Era of Covid-19

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Abstract

Covid-19, which suddenly broke out in 2019 and has been popular all over the world for more than 3 years, has brought unprecedented changes to human beings. Before that, colleges and universities have already need to change and innovate their curricula and teaching to teach “twenty-first century skills” for students, which are problem-solving and critical thinking, creativity and innovation, intercultural understanding, communications, information, media literacy, computing and ICT literacy, responsibility and leadership, accountability and productivity, self-direction and initiative, adaptability and flexibility. In this situation, TPD (teacher professional development) evokes teachers to satisfy students needs for education in the twenty-first century and in the era of Covid-19 even post-Covid-19, which increases the urgency and necessity. Through the systematic analysis of the relevant research results, summarized strategies of TPD in the twenty-first century Covid-19 and post-Covid-19 era: evaluation of TPD needs, cultivating skills of the twenty-first century, integrating ICT instruction, peer coaching, creating the positive culture of campus, building collaboration, initiative learning, embedding the core values, sustainable professional development, research projects and training teachers' emergency capabilities, to meet teachers' learning and practice, and to address challenges that have existed and may arise in future.

Keywords: Covid-19, online teaching/learning, teacher professional development, twenty-first century skills, twenty-first century education

1. Introduction

Because of the Covid-19 pandemic outbreak, it has brought unprecedented changes to our life and educational environment, and it can be said that most of the devastating challenges [1]. For the sake of stopping the virus spread and reducing

the death toll, people took radical or restrictive measures, such as keeping social distances, and even blocking and closing offices, markets, schools, and universities [2]. This has also led to the gradual transformation of almost all offline activities into online forms [3–5].

Education is one of the most critical industries affected by the global Covid-19 pandemic [6]. On the basis of the United Nations Educational, Scientific and Cultural Organization report on the interruption and response of Covid-19 education (2020), to control the Covid-19 pandemic spread, the governments in 190 countries and regions around the world have closed educational facilities of the educational systems [7]. The report further noted that these closures “affected 80 percent of the world’s student population,” who had to be shut out of educational institutions [8]. Higher education institutions, like other educational institutions, are forced to continue to provide educational services through “online distance teaching” to respond the Covid-19 [1, 9].

In fact, in the pre-Covid-19 era, “online distance teaching” has been developing on a small scale [6, 10]. There is an old history of distance teaching: 1) correspondence curriculum-conducted by ordinary mails with little interaction; 2) distance curriculum-disseminating contents by TV or radio; 3) CD-room curriculum; 4) online curriculum-synchronous or asynchronous Internet; 5) mobile learning-using devices such as mobile phones, audio digital players (iPods and MP3 players), or PDA (personal digital assistant) [11].

Educational institutions are increasingly required to use digital technologies to teach students skills and knowledge they need in the digital age, so some schools have launched distance education projects before the advent of Covid-19 [12, 13]. After all, this is the twenty-first century with the speedy development of globalization, politics, economy, and science technology, thus people need to master more and newer skills and abilities to work, live and learn, while college and universities must train twenty-first century skills for students to meet the fierce challenges of today and the future [14–17]: such as problem-solving and critical thinking, creativity and innovation, intercultural understanding, communications, information, media literacy, computing and ICT literacy, responsibility and leadership, accountability and productivity, self-direction and initiative, adaptability and flexibility [18, 19]. Teachers must develop and master these professional abilities before they teach students to meet the students’ needs [20].

However, in the era of Covid-19, teachers’ skills development of the twenty-first century is more urgent and necessary, especially under the social background of “online teaching,” which is forced to popularize [6]. Educators are the holders of knowledge and impart wisdom to students, but this concept has not been suitable for educational goals in the twenty-first century. Via clicks on computers, laptop, and mobile phones, students acquire knowledge or study technical skill, to enhance teacher professional development, we have to redefine teachers’ role [11]. Although many universities (especially non-developed countries or regions) are not interested in “online teaching,” Covid-19 makes this teaching model mandatory, and academic participants who are not ready for online teaching will be left behind by the age of science [21]. Moreover, the advocacy of the online classroom in the Covid-19 era will lay the foundation for solving the classroom behavior problems in any emergency in the era of post-Covid-19. Therefore, online classroom in the era of post-Covid-19 or its mixture with offline classroom will be a paradigm shift in the existing teaching practice [5, 8]. The corresponding teachers’ professional development or promotion is particularly important.

2. Methods

This paper adopted the method of content analysis to attain the aim: To explore the teacher professional development and improvement strategies for education in the twenty-first century in the era of Covid-19. Content analysis is a method of summary and quantification according to the scientific standards [22]. It is widely regarded as systematic and transparent process, such as searching for themes, collecting data, data analysis, data interpretation and description, considering data context, and even philosophical background [23].

The authors systematically review recent studies published online on teacher professional development and also focus on the education of the twenty-first century in the Covid-19 era. Keywords identified based on the objectives of the paper focus on strategies of TPD (teacher professional development) and the education of the twenty-first century in the covid-19. With the theme of TPD strategies in universities for twenty-first century education in the Covid-19 era, we collected and classified the data and frequency of words statistics for each keyword and summarized based on the paper aim.

After analysis, the strategies of university teacher professional development for twenty-first century in the Covid-19 era even post-Covid-19 era are proposed: evaluation of TPD needs, cultivating twenty-first century skills, integrating ICT teaching, peer coaching, creating the positive culture of campus, building collaboration, initiative learning, embedding the core values, sustainable professional development, research projects, and training teachers' emergency capabilities.

3. The twenty-first century education

3.1 The twenty-first century education

The rapid development and new trends of globalization, politics, economy, science, and technology have a profound impact on our life, work, and learning in the twenty-first century, thus education has to be changed to meet and suit the twenty-first century development [14, 24]. Related stakeholders appeal that we need to innovate curricula and teaching to teach "twenty-first century skills" for students.

3.2 The twenty-first century skills

In the twenty-first century, students' achievement and successful performance are important goals for education [25]. As students study knowledge and skills of the twenty-first century well, it can help them achieve higher academic performance in school, even better life and work after time [16]. Kozma [25] and Schleicher [16] also mentioned that school leaders should guide all staff to give service to students and give support them to develop the skills of the twenty-first century. Therefore, the relevant administrators must adjust and improve the related system to satisfy this requirement.

Some researchers have mentioned that students need to learn and have many skills for the twenty-first century [16, 17, 26]. There are twenty-first century skills framework listed by Partnership for twenty-first Century Skills [18]: problem-solving and critical thinking, creativity and innovation, intercultural understanding, communications, information, media literacy, computing, and ICT literacy. In 2019, this organization made the integration and supplement, then it listed three competencies

types: 1) learning skills, they are problem-solving and critical thinking, innovation and creativity, collaboration and communication; 2) literacy skills, they are media literacy, information literacy, and ICT literacy; 3) life skills, they are responsibility and leadership, accountability and productivity, self-direction and initiative, adaptability and flexibility, social and intercultural skills [19].

Above skills are crucial to students and their specific meanings as partners. To deliver “employable” graduates, college and universities have to train twenty-first century skills for students thoroughly and retain and expand their development [27].

3.3 The twenty-first century higher education

In the twenty-first century, as globalization evolves, the role of higher education institutions is increasingly like a tool of public diplomacy [28]. In this age of knowledge in the twenty-first century, the people who are educated and their thoughts have become the foundation of building national wealth, and the higher education value was never so important [29].

Meanwhile, Jesa and Nisha [30], Egan and peers [31] showed that creative thinking and discovery have been the central and necessary mission for higher education recent years, almost all higher education institutions impart new knowledge and skills to the young generation. The purpose of college and universities is to train students to attain career success with knowledge and ability after graduation [32]. Thus, it has become a vital mission and task for colleges and universities to train students with twenty-first century skills so that they can survive in the global society in the twenty-first century.

Galicia [33] illustrated that higher education has adopted strategies to address twenty-first century education by developing the twenty-first century skills of teaching and learning, such as integrating media literacy into teaching. And other examples such as developing communication and critical thinking skills for students [34], training students intercultural understanding skills and ICT skills [35–37]. Without using ICT, some high-quality teaching processes of college and universities are actually unimaginable, especially due to its impact on developing necessary competencies and skills for twenty-first century [38].

3.4 Higher education in the era of Covid-19 of twenty-first century

In fact, before the Covid-19 pandemic, higher education faced different challenges [39]. As mentioned above, because of students’ needs, teachers must master twenty-first century skills like creative thinking, critical thinking, information and communication technologies. Covid-19 brings more and more urgent challenges to higher education, such as the inability to interact face to face in the classroom, which means that teachers have to develop and organize students’ learning better and create a distinctive learning environment with the assistant of digital technology [40]. The digital competence discussion has already become a much-talked-about topic nowadays, after the advent of the Covid-19, and its huge influence on the educational industry, it ached a new height regarding the concerns of digital competence [41].

However, “online teaching” makes it impossible for teachers to maximize the power of body language, facial expressions, and teachers’ voice to enable students to understand the explained materials [2]; students are unable to ask teachers questions face to face, which may reduce the enthusiasm, creativity, and self-discipline of many students [42]; insufficient teaching resources for teachers and students, and

most university teachers lack online teaching experience [2, 43], because many online courses were designed by learning design experts (that is, instructional designers) and delivered or implemented by instructor-teachers [40].

In the process of online teaching, family members may cause interference, resulting in the inability of teachers and students to focus on class and learning [12, 43]; communication technologies such as the Internet, virtual platforms, and social media are needed [4]. However, the conditions in some remote areas are limited, and many public departments and institutions especially in developing countries are usually unable to use formal online learning management systems to promote communication between teachers and students [1, 44]. Even in some backward countries or regions, a small number of students may not have mobile phones or computers, poor Internet signals, or no network [43]. Teachers and students who have lower digital ability are also easy to fall behind in “network classroom” [12].

Sobaih and peers [44] also listed 15 more specific challenges posed by online education: 1) new learning policies and programs; 2) new learning culture; 3) support of the management; 4) time limit; 5) security and privacy; 6) moral considerations; 7) IT infrastructure; 8) awareness of online classroom teaching and learning; 9) assessment and grading; 10) student needs; 11) coordination with students; 12) difficult implementation of practical courses; 13) student support; 14) sharing of materials and recordings; 15) selection of social media types to use. Mukhtar and peers' [45] research shows that online teaching is inefficient, such as inability to teach practical skills (especially medical courses), lack of student feedback, limited attention duration, and difficulty in maintaining academic integrity, such as lack of discipline and plagiarism.

Everything has its advantages and disadvantages, and Covid-19 also brings some opportunities, such as promoting the development and utilization of “online teaching” or “virtual classroom” or “mobile learning” in colleges and universities, so as to maintain the academic connection between teachers and students and make education continuous [39]. Online teaching often uses paperless methods to distribute materials and submit assignments, which is environmentally friendly [2]. Teachers and students can teach and learn without leaving home, and the time and place are convenient [4]. Teachers can provide instant feedback through social media, which sometimes takes several weeks to dissipate in the traditional teaching environment [39]. Online teaching has a lot of flexibility, such as ease of management—teachers have the right to turn on or unmute microphones and videos; accessibility—less confident students can easily contact through social media; comfort—can easily and comfortably lecture and attend lectures; asynchronous learning—courses are recorded and saved, and it is easy to go back to browse the course videos for summary [20, 43, 45, 46].

University researchers are looking for short- and long-term solutions to the threat virus poses to humans. In order to provide creation to address the latest challenges of online learning, teaching technicians, especially distance education researchers, need to leverage the sudden increase of online learning participants as an opportunity for research advances. Most of researchers will participate in research activities because of these new problems, and that will record a large number of research innovations and publications [12].

Thus it can be seen that Covid-19 is not all bad, but the challenges and problems it brings far outweigh the opportunities [1]. Unfortunately, comprehensive research shows that most students and educators (educational leaders and teachers) are not ready for online learning in the era of Covid-19, both psychologically and skillfully [1, 40], which may lead to teachers' inability to better help students learn and develop

the skills they need in the twenty-first century to meet this challenge and more or unexpected challenges in the future. And for some governments, there are not enough policies to encourage and support college and universities to incorporate elements of modern educational technology into online curriculum [10]. However, teachers, as promoters of students' learning, play a vital role in their respective higher education institutions, so it is urgent to seek strategies for the teacher professional development or promotion under the background of Covid-19 in the twenty-first century [1, 47].

4. TPD (teacher professional development)

4.1 Teacher professional development

Many people regarded education and teacher professional development as the cornerstone of educational progress in a school reform age [48]. The focus on school quality has been on teacher professional development over the past few decades [49].

The teacher is one of the biggest factors on students' academic engagement and performance. DeMonte [50] believe that teachers' skills and knowledge of subject and class practice can be improved and strengthened by TPD. TPD is one of approaches to address teaching and student performance, and it is necessary to have intensive, sustainable, and content-centric TPD [51]. Professional development increases teacher knowledge, teacher skills, and student learning [52].

Nevertheless, currently, teachers face many challenges: The gap between economic growth and the declining quality of student learning [53] to meet twenty-first century education challenge, teacher professional development requires the investment of professional skills and knowledge; innovation is also urgent to promote professional development of teachers [54].

There are different kinds of definitions for TPD. Some think TPD is the product of complex and competing influences in both policy and practice [55]. Silver and peers [56] focus on TU (teacher understanding) as a central part of the teacher professional development process. It seems like most usually think teacher professional development is teachers' learning: how teachers learn to learn, and how they transform knowledge in practice for the benefit of their students' growth [57].

There is a complex framework for teacher professional development. Opfer and Pedder [58] showed that it can be split into three kinds of systems for TPD, namely school system, teacher system, and learning activity system. School system, namely the influence of school culture and circumstance on teachers' learning, it will share mission and vision of the school to teachers in order to support their teaching and learning. Teacher system explains the influence of teachers' personal experience, beliefs, and goals on their own practice. Learning activity system is teacher professional development activity, like Liu and peers [54] mentioned cultivating a self-organized and self-maintained TPD practice community.

Teachers should work with their coworkers, so that they have mutual learning. One study believes that teacher professional development is embedded in work and sustainable [59]. Professional development is related to teachers' professional skills, knowledge, and teaching content and helps to improve teachers' professional ability and motivation [52]. As we know, there is usually a gap between theoretical understanding and practice. It is a procedure of being involved in change and organizational learning to plan and implement TPD [60]. The high-quality professional development is described in some research studies: consistent with school's goals;

being focused on core contents; active and initiative learning for new teaching strategies; collaboration for teachers; embedded tracking and continual feedback; and the link between doctrine and practice [61, 62].

Generally, professional development exploration and discussion are a long process, not short-term thing. And some schools have established the community for professional learning and development, so that it can change instruction practice and pay attention to students' learning effect. Teacher professional development is centered on students' learning. The findings debate promotes faculty teaching practice through careful observation and informal or formal discussions with peers.

4.2 The TPD of the twenty-first century education

Things are always changing. Based on the report of the UNESCO [63], systems of education are changing around the world.

One of the important contents of educational reform is teacher professional development [48]. In order to achieve twenty-first century education's expectations, TPD has to focus on skills of the twenty-first century. Teachers participating in professional development must improve skills of the twenty-first century, for instance, problem-solving, critical thinking, intercultural skill, innovation, creativity, communication and collaboration, media literacy and ICT literacy, flexibility and adaptability, responsibility, and leadership [19, 64].

As professionals, teachers need to engage themselves in continuous professional development [65], and TPD should integrate skills of the twenty-first century into instruction. For example, incorporate intercultural understanding skills into literature courses; in management classes, practice skills of the problem-solving and critical thinking; focus on technical skills in mathematics classes [66]. Teachers increasingly learn and understand skills of the twenty-first century with the teacher professional development. Therefore, teachers know how to improve students' skills for the twenty-first century, link skills of the twenty-first century to real life during teaching to stimulate interest of students [37].

Meanwhile, effective teacher professional development makes teachers become active learners and contents co-creators [67]. The form of activities, teachers' working background (school, major), and activity time affect teachers' learning. And so are the successful factors of schools and evaluation and feedback of teachers affecting effective TPD [61]. DeMonte [50] and others [57, 68, 69] demonstrated that focus on content, active learning, collaboration, expert support, teacher professional evaluation, and duration are the keywords of effective methods to teacher professional development.

4.3 The TPD of higher education

Liu and peers [54] mentioned that higher education teachers are more demanding, more precise, more comprehensive, and more enlightening compared with K-12 education. High-quality higher education teachers are with extensive and profound intellectual knowledge and skills [30]. Similarly, teacher professional development should also be deep-seated. Furthermore, qualified lectures were innovative and trained in a variety of teaching methods. The teaching strategies of university teachers usually include authoritative strategies, democratic strategies, and basic information technology strategies [48, 70, 71].

The old learning methods do not produce students with the skills to reflect on the complex university issues. They are ecological, social, and economic outstanding

problems, such as climate change, rapid biodiversity decline, poverty, and water shortages [72]. Interdisciplinary inquiry and collective action are key to promoting the learning of more knowledge. Therefore, teachers are encouraged to study more and newer knowledge and skills to nurture young generations, such as addressing complex problems, intercultural skill, ICT literacy, and leadership.

Nevertheless, in the traditional professional development, teachers usually have less opportunities to participate in the design. In fact, it will bring good challenges for teachers through the practical learning [73]. Practical learning directly involves experience of teachers and focuses on the feedback. The approach helps teachers develop constructive skills and knowledge, because teachers can better understand the system of school, reflect on teaching and curriculum, then they change the classroom practice and solve the students' problems.

4.4 The TPD in the era of Covid-19 of twenty-first century

In Covid-19 emergencies, teachers are required almost overnight to be designers and instructors, to use tools that few people can master, to design valuable learning activities, and to flourish in this unfamiliar space [40]. Because teachers' professional accomplishment is the most significant factor affecting students' online classroom satisfaction, thus affecting students' learning performance and quality, which means that teachers need to be very efficient and understand students' psychology when lecturing, in order to highlight and properly teach the course content [74].

Most teachers do not have online teaching experience, and in some cases, some of the practices used in face-to-face teaching can be migrated to an online teaching environment, but teaching online courses still requires teachers to acquire innovative and unique knowledge, skills, and abilities to operate successfully in teaching practice and to support students' learning [9, 43, 46]. For example, teachers need to learn to use many new virtual network platforms or software, especially for elderly teachers who are not skilled in modern technology; they must receive online teacher training or private guidance to prepare them for online teaching [10]. Teachers need to have the ability and literacy to manage communication technology, as well as skills such as flexibility, problem-solving, and creativity in curriculum planning and the use of distance learning tools [75, 76]. For example, teachers must be able to ensure that all students are ready to learn, which requires the exploration of creative teaching methods to attract them [43].

There are also a considerable number of teachers believe that social media has a lot of questions and questions from students throughout the day, putting more pressure on them, and time and energy management has become very uncontrollable [44]. There are also teachers who do not have such experience and do not have confidence in themselves, which makes online teaching a burden on themselves, thus unable to solve teaching problems very well. But in this special period, the complexity of teaching requires teachers to solve problems quickly in the virtual classroom [43]. Therefore, teachers' flexible time management ability and problem-solving ability are also very important.

Teachers also need to overcome the traditional model and challenge the virtual teaching form in which can't see students or even interact with each other [8]. Teachers need to redesign formative questions, tests, or exercises provided through digital and mobile technologies to interact with students to promote effective teaching and learning [4]. The evaluation after the delivery of teaching also needs to be significantly revised, thus the teaching evaluation of both teachers and students is more complex [12].

Teachers need to define the duration of online courses according to students' self-regulation and metacognitive abilities [4]. Teachers need to ensure and remind students that online resources, platforms, and applications for e-learning should not infringe on users' data privacy [44]. Moreover, teachers may need to know more about psychological counseling, as the continuous blockade not only brings challenges to students' learning, but also has a significant impact on students' mental health [6, 9]. This social division is a traumatic event that may have long-term cumulative adverse effects [7], such as related stress, depression, and anxiety [1, 77]. Cao and peers [78] identified three factors of anxiety for students: 1) economic stress; 2) the impact on daily life activities; 3) academic delays and difficulties during Covid-19 [78].

In order for higher education institutions around the world to remain competitive, it is necessary for teachers to be prepared for professional development. And now, more than ever, universities should invest in the teacher professional development, enable them to learn about effective teaching methods with or without online technology, and further to expand the effectiveness of education so that students attain development [40, 46].

5. Suggestions on the professional development of university teachers in the era of Covid-19 of twenty-first century

Pham and Ho [10] given the following suggestions in the study: 1) Policy: after Covid-19, encourage the combination of "online teaching" and "offline teaching" in most higher education courses, which will help higher education institutions, teachers, and students prepare for a smooth transition to the era of digitization and globalization. 2) System: institutions of higher education should build a quality system for online examinations and student engagement, such as changing teaching methods to maintain the quality of teaching, learning, and evaluation. 3) Support: financial, academic, and technical support for institutions of higher education that have not started online teaching during the Covid-19 period to obtain the latest management system operation [10]. More researchers have also mentioned the importance of reorganizing the teaching evaluation system in colleges and universities, such as replacing it with homework to avoid face-to-face final exams [2, 39, 44, 75].

Bao [42] summarized several effective strategies for university teachers' online teaching under Covid-19: 1) To better solve problems, universities and teachers work together to make contingency programs. 2) Redesign, dividing teaching contents into smaller units. 3) Improve the ability of communication and cooperation to gain multi-party support. 4) Improve the ability of management and motivation, and increase the control of online teaching, so as to strengthen students' active extracurricular learning [42].

As teachers need to provide psychological counseling or guidance for some students, universities or relevant institutions should also provide teachers with richer and corresponding psychological professional knowledge [6]. For the future, universities should evaluate their online learning strategies and use postmodern feedback to enable teachers to use different online solutions [39].

In terms of the competencies that leaders must possess in the universities environment, the role of principals is crucial, not only during the Covid-19 pandemic, but also under normal circumstances, the role and ability of principals must be able to provide teachers with a positive space to improve their teaching and learning abilities [20].

Colleges and universities need to help teachers improve their skills, develop teacher training programs, and help teachers adjust and adapt to their teaching styles and the way they interact with students in order to adapt to the online education environment. However, it should be adjusted according to the macro background of each country, the student profile and the field of learning [47]. As most college teachers have no online teaching experience and have no confidence in their online classes, universities also need to help teachers build effective self-beliefs so that it enhances their self-confidence in teaching [20, 43].

The government and relevant departments need to further promote the construction of educational informatization; to prepare standardized learning and teaching equipment for students and teachers; conduct teachers training online, and support online academic research, especially to help students with difficulties during online classroom [79]. In order to provide a professional reference basis for teachers' online teaching, there is a need to develop a competency framework and other standards for that; to develop evidence-based policies, complemented by guidelines for the implementation of these policies so that it develops a comprehensive teacher education system and develop teachers' professional knowledge and skills [11, 46].

Almazova and peers [3] also mentioned that technical, psychological, methodological support and TPD plans are crucial to minimize negative impact of rapidly changing educational processes and to ensure effective online education: to help address mental barriers in online classroom; a developed material and base of technology, including software and hardware; support from organization and methodology-suggestions related to instruction activities during the digital education; TPD programs and supervision from universities, with a focus on the teachers' academic work quality while online working [3].

6. Discussion

It can be shown that TPD strategies in college and universities by reviewing and analyzing related researches for the Covid-19 era (even including post-Covid-19 era) in the twenty-first century as below: evaluation of TPD needs, cultivating skills of the twenty-first century, integrating ICT instruction, peer coaching, creating the positive culture of campus, building collaboration, initiative learning, embedding the core values, sustainable professional development, research projects, and training teachers' emergency capabilities.

6.1 Evaluation of TPD needs

It is a beneficial way: teachers reflecting on professional development. It involves analyzing teachers' needs and problems, improving training processes, and improving learners' efficacy and beliefs. Moreover, evaluation is able to improve cognition and practice of teachers. Self-assessment is also suitable for TPD. In the urgent Covid-19 era, the needs of TPD vary from time to time, especially the forced "online teaching" is the new experience for many teachers, and the skills or professional development that teachers need are different from those in the past. Countries, regions, and universities need to work together to reorganize teaching, learning, and evaluation systems to help teachers and stakeholders get more appropriate feedback and further enhance professional development.

6.2 Cultivating skills of the twenty-first century

TPD must assist teacher to cultivate skills of the twenty-first century. The skills of the twenty-first century usually refer to problem-solving and critical thinking, creativity and innovation, intercultural understanding, media literacy, computing and ICT literacy, responsibility and leadership, accountability and productivity, self-direction and initiative, adaptability, and flexibility. They need to be connected and coherent with contents, curriculum, and strategies of TPD. Especially in the sudden outbreak of the Covid-19 era, these skills are all the more urgent and necessary, because “online teaching” has been forced to become a mandatory teaching mode, and in the post-Covid-19 era, this model is more likely to be mixed with offline teaching to cope with the accelerating era of digitization and globalization.

6.3 Integrating ICT instruction

For TPD, it is able to use information communication technology. Generally, the online program provides a space for teachers to communicate mutually, so that they can learn or share twenty-first century skills training experience. Peer coaches are able to apply some videos while giving teachers training. Although most university teachers do not grow up in the Z or Alpha generation in the digital environment, they hold the mentality of lifelong learning or even master necessary information and communication technologies in the twenty-first century. They can be applied to teaching and academic, so that teachers can obtain better professional development.

6.4 Peer coaching

Coaching or guidance brings appropriate practice and tools for TPD. Experienced teachers need to be introduced to educate them in effective ways to develop their skills of the twenty-first century in professional development. The peer coaches may act as consultants or advisors so that they can help teachers who are not non-experienced and develop non-experienced teachers with communication skills, self-management, problem-solving. In general, because of knowing teachers well, peer coaches are able to devise useful guidance on how to teach skills of the twenty-first century and how to motivate students' learning during online and offline class. For example, in the context of Covid-19, many college teachers do not have the psychological, knowledge and skills experience of online teaching, so they can get more abundant guidance through peer coaching of experienced teachers.

6.5 Creating the positive culture of campus

Campus culture represents the learning environment of the school. In order to support TPD, school managers need to concern whether the organizational structure and system and environment are appropriate. To some extent, college and universities should develop positive culture of campus, to support TPD for the Covid-19 era in the twenty-first century education. For example, according to the actual situation of various countries, localities, and schools, school leaders should formulate teacher professional development plans different from offline teaching from the aspects of psychological obstacles, technical level, method support, teaching activities, academic development, and so on so that develop the supervision and guidance policy of online teaching.

6.6 Building collaboration

The collaboration methods include teacher network, teamwork, learning community, and peer coaching. With professional development embedded in work, group teachers are able to have together discussion, to share diverse ideas, and study mutually to get the same aim. More importantly, teachers improve themselves through working with others, in interdisciplinary teams, with the same aim for students' performance and success, as well as preparing for online teaching and improving new and corresponding teaching strategies.

6.7 Initiative learning

In general, the professional development program provides teachers some opportunities, which are active and increased engagement. Teachers are able to retrospect students' twenty-first century skill performance, the status, attitude, and effect of online learning, obtain their teaching feedback to support future professional development. In the process of devoting themselves to learning, students must fully participate in the three aspects of behavior, emotion, and cognition. In the case of online learning, more students will be unable to concentrate on learning because of a variety of situations (family interference, unsupervised, bad psychological state, poor network and facilities, etc.). This requires teachers to use more skills and teaching strategies to stimulate and help students to learn actively.

6.8 Embedding the core values

TPD needs to conform to teacher's aims, needs, attitudes, beliefs, and cognition. TPD also has to tally with the goals, standards, missions, and visions of the country, region, and college levels. In order to increase the skills of the Covid-19 era and post-Covid-19 era in the twenty-first century, the programs regarding teachers' training must be tailored to the targets, and certain section must be tailored to the context. So that it can make teacher professional development keep pace with the times, as to be able to deal with many sudden challenges.

6.9 Sustainable professional development

The duration is usually the length of time for TPD. There is a process for TPD, and it is not short-term shopping. However, TPD time is too long is disadvantageous. Some studies have shown that the impact on TPD is greatest when the duration exceeds 100 hours and less than 1 year. TPD period has to ensure contents and quality, to help teachers learn how to make skills of the twenty-first century into the curriculum and teaching, and help teachers develop and improve online teaching skills and strategies, and prepare for mixed online and offline teaching models in the post-Covid-19 era.

6.10 Research projects

We know that research projects play an important role in TPD of college and universities. Research of teachers' development, discussion, absorption, and practice of new skills and knowledge is essential. TPD of twenty-first century skills will be universal, effective, continuous, and constantly updated because of research projects.

Such as “online teaching,” which is very new to many teachers, has been investigated and studied by university scholars in many countries using different methods, and even continuous follow-up research, to support teachers’ sustainable professional development.

6.11 Training teachers’ emergency capabilities

University teachers need to cultivate emergency capabilities and keep a set of emergency plans in line with their own, whether in terms of psychology or action. Keep constant vigilance and learning to acquire emerging cutting-edge knowledge and skills, and to sum up their own plans and strategies of addressing acute problems, even keep them in a state of constant update. It is helpful for teachers to acquire or update professional development and skills better and faster when they may encounter large-scale events such as Covid-19 or other unexpected events in the future.

7. Conclusion

In a word, universities’ TPD for Covid-19 and post Covid-19 education in the twenty-first century is all-important. To satisfy the needs of students, teachers must improve students’ twenty-first century skills, including problem-solving and critical thinking, creativity and innovation, intercultural understanding, communications, information, media literacy, computing and ICT literacy, responsibility and leadership, accountability and productivity, self-direction and initiative, adaptability and flexibility. Teachers must master them to change the antiquated instruction. In the era of Covid-19 and post-Covid-19, they are particularly urgent and important. Strategies of TPD may include evaluation of TPD needs, cultivating skills of the twenty-first century, integrating ICT instruction, peer coaching, creating the positive culture of campus, building collaboration, initiative learning, embedding the core values, sustainable professional development, research projects, and training teachers’ emergency capabilities. These strategies can satisfy teacher’s learning and practice and help enhance TPD of college and universities education in the twenty-first century, Covid-19 era and post-Covid-19 era.

8. Significance of the study

The paper aims to provide relevant information on the teacher professional development of college for the education in the twenty-first century, Covid-19 era and post-Covid-19 era. The results pay attention to effective strategies of TPD for Covid-19 era education of the twenty-first century in college and universities. TPD for the Covid-19 era education of the twenty-first century is indispensable. University teachers will have more insight and understanding about the professional development of education in the twenty-first century. In addition, TPD became a portion of school innovation.

Education of the Covid-19 era in the twenty-first century provides new models and opportunities for teachers’ professional development, to provide professional development strategies and suggestions for teachers and administrators for twenty-first century education. Subsequent researchers are going to obtain more specific

information and knowledge concerning TPD in twenty-first century education. In this context, future studies are able to do more on TPD for education of post-Covid-19 era of the twenty-first education.

Objectives

To explore the teacher professional development and improvement strategies for education in the twenty-first century in the era of Covid-19.

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Perspective Chapter: The War as a Factor of Upheavals and Transformations in Higher Education – Experience of Ukraine

Valentyna Polykarpivna Antoniuk

*Education is a better safeguard of liberty than a standing army
(Edward Everett, US politician and statesman, President of Harvard College)*

Abstract

This section aims to analyze the impact of the war unleashed by Russia in Ukraine on the higher education system, the losses incurred, and the forced transformation processes that form new vectors for the development and modernization of higher education for post-war recovery. The introduction outlines the author's understanding of the essence of the war in Ukraine as a global civilizational conflict, its causes, and its consequences. Further, the analysis of challenges to the education system in the context of armed conflicts in the studies of foreign and domestic authors is carried out. The study of the problems of Ukraine's higher education began with its general characteristics in the pre-war period. The essential attention focuses on a review of the impact of the war on the system of higher education in Ukraine, where two stages are distinguished: the first is the consequences of the armed conflict of 2014-2021 for higher education in Ukraine and the peculiarities of the forced relocation of universities; the second is the risks and losses of higher education institutions in Ukraine in the context of the 2022 war. These are the problems of security and preservation of infrastructure, human resources, and student body of universities. The change in organizational forms and methods of training in combat conditions to ensure the educational process are highlighted as well as the importance of using digital technologies, innovative approaches, and international cooperation for the preservation of higher education. At the end of the section, the immediate and long-term negative consequences of the war for higher education in Ukraine are systematized, and it is concluded that the educational transformations caused by the war contribute to the formation of new vectors of post-war reforms and the development of the Ukrainian higher education system.

Keywords: war, Ukraine, higher education, war risks and losses, displaced universities, transformation of the educational process

1. Introduction

The importance of studying the impact of war on higher education is due to the fact that it is of key significance for the formation of human and intellectual capital, formation of the national elite, development of science and culture, improvement of the state technological level, formation of a modern economy, and establishment of democratic foundations of social development. As the history of armed conflicts shows, in any war, the education system becomes the arena of a battle, as it is the battle for people's minds and worldviews. In the conditions of the formation of the knowledge society and the aggravation of global contradictions, the war in the field of education becomes especially important.

The 21st century is characterized by increasing global instability and aggravation of various risks, as indicated in the results of the research by experts of the World Economic Forum (WEF), which annually publishes reports on global risks. According to their assessment, in recent decades, the most threatening to society in terms of probability are environmental risks and in terms of impact – geopolitical risks (large-scale terrorist attacks and the use of weapons of mass destruction). The war in Ukraine is the result of the escalation of global ideological and political confrontations in the conditions of the accumulation of lethal weapons and weapons of mass destruction. The war was a shock for Ukraine, which had a negative impact on all spheres of the country's social life, which made it necessary to study its causes and consequences.

In Ukraine, many scientists have analyzed the causes and the consequences of the Russian-Ukrainian war. It should be highlighted that the research of specialists of the National Institute of Strategic Studies [1, 2] have revealed the essence and features of hybrid wars, investigated the Ukrainian-Russian strategic confrontation and fault lines, and considered the prerequisites of Russian aggression against Ukraine and its consequences. In the publications of I. Rushchenko [3] and L. Zaliznyak [4], the civilization nature of the long Russian-Ukrainian conflict, which is caused by different historical, cultural, and mental differences in the organization of public life, is investigated. This aspect of the Russian-Ukrainian relations and confrontations has also been analyzed by the scientists of the National Academy of Sciences of Ukraine [5]. These and other publications lead to the conclusion that this war is based on civilizational opposites and strategic differences in the vectors of development of the two warring countries – Russia and Ukraine. Russia's aggression is due to the desire to build a Eurasian empire on the basis of autocracy through territorial expansion and annexations, primarily of Ukraine, which is substantiated in the book "Basics of Geopolitics: The Geopolitical Future of Russia" by Oleksandr Dugin, who is a modern Russian ideologist of Eurasianism [6]. Ukraine became the object of invasion as a result of choosing another vector of development, which is integration into the European social and economic area and the development of a free, democratic country, which is based on human rights and freedoms. Therefore, this war has a civilizational character, and it is carried out in an extremely brutal form and threatens democratic conquests and values of the world. And higher education is one of the greatest values.

It should be noted that the above-mentioned publications do not give the analysis of the problems of education in the conditions of war. However, they reveal general causes of the armed confrontation, which is important for understanding its nature and negative consequences for the Ukrainian state. Its consequences for the economy and human development of the country are especially harmful, since Ukraine is having huge losses of material and human assets. It has caused great destruction to the

education system of Ukraine, including higher education. The purpose of this chapter is to analyze the impact of the war, unleashed by Russia in Ukraine, on the system of higher education; the losses incurred and forced transformation processes that form new vectors of development; and modernization of higher education in the course of post-war recovery.

2. Analysis of the challenges to the education system in the conditions of armed conflicts in the studies of foreign and national authors

High-quality mass education is the most important achievement of a society. It forms a person's worldview, ensures his/her right to development, and provides modern knowledge and competencies necessary for successful economic activity.

The impact of war on education raises a number of humanitarian and social problems, which are the subject of concern of many international organizations and the object of analysis by numerous foreign and national researchers. In particular, UNESCO carries out an expertise in emergency situation trainings, including those caused by armed conflicts. It emphasizes that access to learning opportunities during crises is life-saving and life-sustaining. The specialists of the organization analyze the situation in education during wars in various countries, so Ukraine was no exception. Taking into account significant problems created by the war in Ukraine's education, UNESCO has launched programs to ensure the continuation of teaching and learning in Ukraine. The programs support online education, promote development of digital educational platforms and content and electronic assessment systems for higher education, and provide psychosocial support to participants in the educational process [7].

The international organization UNICEF, which carries out vigorous activities in Ukraine, plays a significant role in highlighting and solving the problems of education in wartime conditions. UNICEF specialists have prepared the report "Children and the War in Ukraine" [8], which, along with other aspects, studies, analyzes, and highlights the problems of children's education during the war. Also, the organization regularly reviews the humanitarian situation and identifies the directions of aid, including the provision of the educational process, in Ukraine [9].

The Global Coalition to Protect Education from Attacks (GCPEA), which was formed in 2010 to address the problem of targeted attacks on education during armed conflicts, is directly related to its activities in highlighting and solving the problems of education during wars. GCPEA regularly conducts research and prepares reports and publications on the situation with regard to education in various countries where such conflicts take place, like Afghanistan, Palestine, Yemen, and many other countries. Analytical reports named "Education Under Attack" are regularly prepared. Their releases for 2014, 2018, 2020, and 2022 are available now. The 2022 edition noted that the number of attacks on educational institutions and the use of educational institutions for military purposes increased by one-third from 2019 to 2020 and continued to increase in 2021. Over a thousand schools and universities were damaged in Ukraine from February 24 to June 1, 2022 [10].

Many foreign researchers analyze the impact of armed conflicts on education in certain countries, for example, in Bosnia and in other countries [11]. In India, it is done by taking into account the gender aspect [12]. Considerable attention is paid to the problems of higher education in the conditions of war, since it is this sector of education that forms highly qualified personnel. Arnaldo Pellin investigated the systemic effects of the war on higher education in Somalia and concluded that

systemic damage can only be overcome through collective efforts [13]. A group of researchers analyzed the condition and losses of higher education institutions in the conditions of permanent war in the Gaza Strip and determined directions of their protection against attacks [14]. The University of Cambridge has published the study results by Cambridge University scholars and Syrian academics in exile on the state of the Syrian higher education system after 8 years of war, concluding that it will gradually collapse [15]. In most studies, material and human losses of universities and colleges are analyzed, their consequences for the development of the country, and ways to protect higher educational institutions are determined.

In Ukraine, the issue of education in the conditions of war became relevant after Russia's occupation of Crimea and parts of the eastern regions of the country in 2014. In the monograph of scientists of Drahomanov National Pedagogical University, [16] analyzed the development of education in a conflict society and its role in building peace and investigated the problems of education in Ukraine in the conditions of a hybrid war; they paid considerable attention to the international practice of reintegration of higher education and the activities of displaced universities of Ukraine. Specialists of the Institute of Pedagogy of the National Academy of Pedagogical Sciences (NAPS) of Ukraine [17] systematized the recommendations of international organizations regarding the organization of education in wartime conditions. Kharkiv IT Cluster has prepared a selection of the most important and up-to-date information about higher education at the end of September 2022, which outlines the changes and features of the educational process in the conditions of a full-scale war [18]. The independent analytical center and community Cedos that works on issues of social development in Ukraine pays considerable attention to the problems of education, which are discussed at round tables organized by it. The center has published discussion materials on the impact of the war on higher education [19]. The author has also made an analysis of the problems of education in Ukraine in the realities of the war from the standpoint of conditions for the formation of human capital [20].

3. General characteristics of higher education in Ukraine in the pre-war period

Ukraine has a long tradition of higher education development, which dates back to the founding of the Ostroh Academy in the 16th century and Kyiv-Mohyla Academy at the beginning of the 17th century. In the nineteenth century, universities, lyceums, and institutes were established in almost all large cities located on the territory of present-day Ukraine, and during the Soviet time, in all regional centers. In 1990, Ukraine had 149 state higher education institutions (HEIs), most of which were in Kyiv, Kharkiv, Dnipropetrovsk, Odesa, and Lviv. It should be noted that after Ukraine gained independence in 1991 and began transition to a market economy, there was a boom in the development of higher education. The creation of private institutes and admission on a commercial basis of a significant number of applicants to state higher education institutions were due to the high demand of the population for higher education under the condition of low tuition fees. The number of higher education institutions increased more than twice from 1990 to 2007, and the number of students increased by 2.6 times, reaching 2372.5 thousand people in 2007 [21]. This increase in the amount of training of university specialists was not determined by the needs of the labor market and

was not accompanied by the corresponding development of the material base of higher education institutions and modernization of the educational process. “Massification” of higher education led to a decrease in its quality and insufficient compliance of the acquired qualifications with the requirements of the economy, which led to the devaluation of a university diploma [22]. Therefore, starting from the end of 2010, the process of optimizing the number of higher education institutions and the scope of university training of specialists, modernizing the content and directions of the world, and strengthening the emphasis on the quality of education and the formation of modern competencies has taken place. This was facilitated by: the Law “On Higher Education” of 2014 with amendments of 2020, which is aimed at quality training of competitive human capital for high-tech and innovative development of the country; The National Agency for Quality Assurance of Higher Education, which was created on the model of the European independent quality assurance agencies; gradual integration of Ukrainian universities into the European space of higher education and their active participation in the EU Tempus and Erasmus+ programs.

On the eve of the 2022 war, Ukraine had a significant number of higher education institutions capable of training specialists for the economy. As of February 10, 2022, 336 universities, academies, and institutes and 96 other higher education institutions (schools, technical schools, and colleges) were operating, with 1,335,700 students studying at levels 5–8 of the Framework of Qualifications. The qualification levels are: Junior Specialist – 362.5 thousand people; Bachelor’s degree – 707.3 thousand; Master’s degree – 240.7 thousand; Doctor of Philosophy – 25.1 thousand people [23]. According to the share of students in the total population, which is 3.3%, Ukraine is approximately at the level of the developed European countries. According to our calculations based on the Eurostat data, in 2020, it was 3.9% in Germany, 3.4% in Italy, 4.5% in Spain, and 4.1% in France [24].

Ukraine has many good universities that are able to provide quality educational services and scientific research. According to the national rating of higher education institutions of Ukraine, which evaluates academic, scientific publishing and international activity and research achievements, the leaders occupying the first 5 positions among the Top-200 universities of Ukraine in 2022 were: Shevchenko Kyiv National University, Sikorskyi Kyiv Polytechnic Institute, Karazin Kharkiv National University, Lviv Polytechnic Institute, and Kharkiv Polytechnic Institute [25]. Also, 11 universities of Ukraine were included in the QS World University Rankings 2023. Among them are Karazin Kharkiv National University, which has a rank in the range of 541–550 positions; Shevchenko Kyiv National University; and Sikorskyi Kyiv Polytechnic Institute, ranking between 651 and 701 positions [26]. So far, Ukrainian universities do not occupy very high positions in the world rankings; however, the number of national HEIs participating in international assessments is increasing. It should also be noted that Ukrainian students take part in the international contests of student works and quite often win.

Examples. Two students of Kharkiv Polytechnic Institute took first place at the ICAMES 2019 International Competition (International Cultural and Academic Meeting of Engineering Students). There were 80 participants from 11 countries of the world who mastered engineering specialties [27]. In the international competition of scientific developments of schoolchildren and students “Science without Borders,” which took place on May 29, 2022 in the city of Teplice (Czech Republic), Ukrainian students from the specialty “Management of Organizations and Administration” received 14 diplomas for 1st, 2nd, and 3rd places [28].

Despite certain achievements, there are currently many problems in the field of higher education in Ukraine that need to be solved as soon as possible: improving the quality of education for the formation of modern competencies, flexible change of training directions and qualifications to the changing needs of the labor market, modernization of the educational process based on digital technologies and global educational trends, raising the level of university science, and more active internationalization of university activities and active participation in the education of the adult population. The possibilities for solving these problems have significantly worsened in the conditions of a full-scale war unleashed by Russia, which has brought significant destruction to the higher education system of Ukraine.

4. The war as a trigger of upheavals for Ukraine and its higher education system, main risks and threats

The war brings huge threats to the education system due to: destruction of the educational infrastructure, use of educational facilities for military purposes, impossibility of organizing training during hostilities, risks to life and health of all participants in the educational process, and forced relocation of higher education institutions, teachers, and students to other territories. Russia's military aggression against Ukraine, which began in 2014 and lasted 8 years in the form of a hybrid war, continued with a full-scale war in 2022. It led to significant destruction and losses in the economy and social infrastructure, causing significant changes in higher education.

4.1 The hybrid war of 2014: 2021 and its consequences for higher education

In 2014, Russia occupied 7% of the territory of Ukraine, including Crimea and the eastern territory of Donetsk and Luhansk regions [29]. Despite the fact that the active phase of the armed confrontation was suspended by a temporary ceasefire in September 2014, the war continued in a hybrid form, which combines military, quasi-military, diplomatic, informational, economic, and other means of warfare by the aggressor to achieve its strategic and political goals ([1], p. 19). Ukraine lost significant industrial potential, which was concentrated in the east of the country. Together with the costs of the war, this led to significant economic losses. According to the calculations of the London Centre for Economics and Business Research Cebr, the conflict with Russia cost Ukraine 280 billion US dollars in lost GDP for the period of 2014–2020; annually, Ukraine lost 19.9% of its GDP since 2014 [30]. Large economic losses limited the possibility of financing the system of education. In addition, during this period, Ukraine lost a number of educational institutions, teaching staff, and students who remained in the territory not controlled by Ukraine, which is shown in **Table 1**. The number of colleges decreased by 20% and their students by 24%; the number of teaching staff decreased almost by 16%. 48 universities with a large number of students and teachers remained in the occupied territories, so the student contingent of Ukrainian universities decreased by almost 17%.

The invasion of Russia in 2014, hostilities and occupation of the territory of Donbas (parts of Donetsk and Luhansk regions), as well as the annexation of Crimea caused large-scale displacement of people and organizations. The number of internally displaced persons (IDPs) in 2014–2015 exceeded 1.5 million people, most of whom were children and adolescents. Creation of fake republics of Donetsk People's Republic (DPR) and Luhansk People's Republic (LPR) in the occupied territories

	Colleges, technical colleges, vocational schools		Change in %	Universities, Academies, Institutes		Change in %
	2013/14	2014/15*		2013/14	2014/15*	
Academic year	2013/14	2014/15*		2013/14	2014/15*	
Number of HEIs, units	478	387	79.5	325	277	85.2
Number of students in HEIs, thousand people	329.0	251.3	76.4	1723.7	1438.0	83.4
Number of the enrolled people to study in HEIs, thousand people	93.9	69.5	74.0	348.0	291.6	83.8
Teaching staff, thousand people	36.3	30.6	84.3	158.5	138.0	87.1

**Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and the part of temporarily occupied territories in Donetsk and Luhansk regions.*

Table 1.
Changes in quantitative indicators of higher education in Ukraine in 2014–2015 [31–33].

under the full control of the Russian Federation and repression against pro-Ukrainian citizens prompted the displacement of a significant number of people, enterprises, and organizations, including the majority of higher education institutions. 18 higher education institutions, three and a half thousand scientific and pedagogical workers, and almost forty thousand students left the occupied territories. 9 universities left the Donetsk region, 8 universities left the Luhansk region, and one university left Crimea [34]. Among those displaced were such powerful universities as: Donetsk National University (DonNU) (is located in Vinnytsia), Donetsk National Technical University (is located on the basis of its own branch in Pokrovsk), Dahl Eastern Ukrainian National University (now is in Severodonetsk), Luhansk National Agrarian University (in Kharkiv), and Taurida National University, named after V.I. Vernadskyi (in the city of Kyiv).

A review of numerous sources with information on the relocation of higher education institutions from the occupied territories in 2014–2015 makes it possible to determine the specifics of this process:

firstly, in the conditions of shock from the invasion and occupation, the political crisis in Ukraine (after the fighting on the Maidan in February 2014, President Yanukovich fled and the new authorities did not gain legitimacy), and confusion and sabotage of some local authorities, higher educational institutions (like other organizations) were left at the mercy of fate and had to decide for themselves what to do. The decision about the necessity of relocation did not come immediately but after the seizure of universities by armed men, banning of everything Ukrainian, and the demand to come under the jurisdiction of the LPR or DPR;

secondly, in choosing the strategy for further activity, the staff of the occupied higher education institutions were divided: one part decided to remain in the occupation, the other part decided to leave for the territory controlled by Ukraine. Therefore, as noted by R. Dodonov [35], almost every evacuated university in uncontrolled territories has its own “clone” that has completely switched its activities to Russian standards and ideological attitudes. During all the years of occupation between the divided universities, according to R. Dodonov, “an ideological gap has grown,” which

can hardly be overcome even in the process of reintegration of the occupied territories into Ukraine, especially with a view to a full-scale war in 2022;

thirdly, the relocation and revival of the universities in new locations was carried out on the initiative and due to the efforts of the teams of the educational institutions themselves. At that time, the Ukrainian state did not initiate the evacuation of these educational and scientific institutions and actually did not provide assistance during the relocation process itself. In new places, resettled universities were treated as competitors, so they did not contribute too much to the organization of their activities. The relocation of higher education institutions became possible only due to the enthusiasm, perseverance, and hard work of the management of these institutions, their teachers, and students, practically without external help. It should be noted that the entire material component remained in the occupation; only the statutory documents and those methodical materials that were on electronic media were taken away. The local authorities provided premises for the displaced institutions, but they were not furnished. There was no necessary equipment, furniture, computers, and housing for teachers and students; there was a delay in funding. The author can personally confirm this situation of the displaced universities, since, being a forced displaced person from Donetsk herself, in October 2014, she was in close contact with the staff of the displaced Donetsk National University in Vinnytsia, who at that time had no material support, except for premises. Employees of DonNU had to search for sponsors and everything necessary for the educational process on their own, with great efforts, and set up work in a new place.

4.2 The full-scale war of 2022 and its consequences for higher education

Even more significant challenges and problems have arisen from a full-scale Russian invasion in 2022, causing massive destruction and considerable negative social-economic and humanitarian consequences [35]. As of September 5, 2022, according to Kyiv School of Economics, the total amount of direct losses reached \$114.5 billion. 412 industrial enterprises; 1153 cultural, sports, and tourist facilities; 15.3 thousand high-rise buildings and 115.9 thousand private houses; 1118 secondary education institutions; 978 medical institutions, and many other facilities were damaged and destroyed [36].

An analysis of the general situation in the country shows that the greatest risks for the education system are related to the following: 1) large-scale destruction of higher education facilities (educational buildings, laboratories, dormitories, etc.) as a result of bombings and rocket attacks; 2) a direct threat to the life and health of all subjects of the educational process, which caused, at the initial stage of the war, the chaotic departure of teachers and students of educational institutions to safer regions; 3) the necessity of forced relocation of higher educational institutions from the zone of hostilities, which took place both on the initiative of the universities themselves and on the decision of the Ministry of Education and Science of Ukraine; 4) the loss of educational and production practice bases for students as a result of the destruction or relocation of enterprises; 5) a significant loss of the contingent of students and pedagogical and teaching staff as a result of migration and mobilization—a large number of them voluntarily joined the armed forces and territorial defense; 6) use of educational facilities for other purposes; 7) decrease in financial resources of higher education institutions; 8) the loss of managerial educational control over higher education institutions in the territories that have come under temporary occupation or are in the zone of active military operations [37].

The Ministry of Education and Science of Ukraine, together with the Institute of Educational Analytics and in partnership with the United Nations Children's Fund, Save the Children, and the World Bank, conducted a study of the state and needs of higher education in Ukraine during the war by surveying 749 universities and their separate units [38]. The obtained research results show the presence of such losses and problems.

4.2.1 Educational institutions

131 institutions, or 5.5% of all institutions of higher education, were destroyed. Most of them were in the city of Kharkiv, which has been constantly under fire. About 30 HEIs reported significant losses of laboratory equipment, library funds, educational materials, furniture, and office property. Universities suffer additional losses due to the use of their premises as temporary shelters for internally displaced persons (as noted by 83 surveyed universities). Also, 51 educational institutions indicated losses due to the need to build functional bomb shelters.

4.2.2 Students

The 2022 war has affected 1.5 million youth and over 70,000 foreign students studying in Ukraine. In various universities, from 1 to 30% of students became internally displaced persons or went abroad. For various reasons, almost 24,000 students did not resume their studies. It was revealed that more than 9000 students cannot continue their education due to the inability to pay for it; another significant number (28%) need to work for living; for some students, the reason was overloaded with care and household duties, which prevented them from returning to studies. Also, more than 100 higher education institutions named worsening psychological well-being as one of the reasons for students to stop studying.

4.2.3 Teachers

Many of them joined the ranks of the Armed Forces of Ukraine (AFU). For various reasons, about 2000 scientific and pedagogical workers could not continue teaching and scientific activities after February 24, 2022. A significant number of teachers (up to 30% in some universities) became internally displaced persons or went abroad. This has led to a shortage of teaching staff, as reported by 63 surveyed educational institutions. In addition to education, many university employees also engage in humanitarian activities, for example, collecting and sorting humanitarian aid.

4.2.4 Educational activity

All universities of Ukraine, despite the war, continue their activities; in most cases, all or more than half of the students have resumed their studies. More than half of HEIs (57%) provide educational services exclusively online, and 41% use a hybrid format (face-to-face and online). However, there are significant obstacles to quality educational activities: significant power outages and lack of Internet connection, the deterioration of the security situation at the training sites as a result of systematic missile attacks, and lack of technical means for online teaching and learning, which was indicated by almost 40% of respondents. Also, only half of educational institutions have the resources to organize inclusive (online) education for persons with special educational needs (SEN).

4.2.5 Financial position

In most institutions of higher education, the financial situation has worsened due to a decrease in income and an increase in expenses. This is due to: a) a reduction in budget funding. State expenditures on all education decreased by 14.84% of the planned. Financing of preferential long-term loans for obtaining higher education was completely canceled; funding of scientific research and scientific and technical development in higher education institutions was significantly reduced (by almost 20%) ([37], p. 234); b) loss of tuition fees for foreign and Ukrainian students who receive education under a contract form (30% of surveyed educational institutions indicated such losses); c) an increase in costs due to the need to adapt to activities under martial law (relocation, shelter arrangement, etc.). Therefore, about 20% of educational institutions reported that they had interruptions in the payment of salaries to their employees, and 23% had interruptions in the transfer of scholarships to students.

4.2.6 Relocated institutions of higher education

In the course of the full-scale war, many HEIs have appeared in the zone of hostilities. In order to create a safe educational environment for participants in the educational process from the regions where active hostilities are ongoing, in particular, Donetsk, Luhansk, Kherson, and certain communities of Zaporizhzhia and Kharkiv regions, more than a hundred universities, institutes, colleges, and their separate structural units, amounting to almost 12% of their total number, were relocated in the country. Among them are: Melitopol State Pedagogical University, Kherson National Technical University, Taurida State Agricultural Technological University, Kherson State Maritime Academy, and many others ([37], p. 166–167). Many universities were relocated from the combat zone in Donbas for the second time. All relocated higher education institutions suffered significant losses: 1) personnel potential, which partly remained in the occupied territory and partly went abroad; 2) production areas, laboratories, other material and technical bases, and basic enterprises that were partners for students' practice; 3) a stable contingent of entrants/students who focused on safer regions of the country or went to study abroad; 4) previous directions and volumes of financing at the expense of the population, enterprises, regions, and the state. Such universities faced great difficulties in settling in new locations, supporting educational process, and recruiting applicants.

4.3 Problems of higher education in the occupied territories

Currently, there are about 1300 schools and 12 universities in the temporarily occupied territories [39]. According to the international norms, the aggressor country must preserve education in the occupied territories in the form it was before the occupation. Russia does not comply with these norms; during the occupation, it primarily subordinates educational institutions to establish control over public opinion and society as a whole. The occupying power changes the educational process in all educational institutions and subordinates it to Russian departments, forcing them to switch to Russian educational programs and standards and switch to teaching exclusively in the Russian language. This educational policy is aimed at destroying the Ukrainian identity. The main risks and problems

of education in the territories occupied by Russia are associated with the following processes:

There is an active search for teachers and lecturers loyal to the occupation authorities and their involvement in cooperation through material incentives and the provision of managerial positions. Since there were not many of them, persons without appropriate professional training, as well as teachers from Russia, are involved in the educational process;

Psychological and physical pressures are exerted on teachers (through threats, intimidation, kidnapping, bribery) to force them to work in Russified educational institutions. In Mariupol, which was on the verge of a humanitarian disaster, the occupiers threatened teachers who refused to cooperate to limit access to “humanitarian” aid. In August, the Russian military abducted the principals of lyceums No. 2 and No. 3, Oksana Yakubova and Iryna Dubas, from temporarily occupied Nova Kakhovka in the Kherson region. Currently, the fate of these people is unknown [40];

Pressure is exerted on parents, forcing them to send their children to study in Russified educational institutions. In the Zaporizhzhia region and Mariupol, the Russians introduced a three-level system of sanctions for refusal: 1) warning, 2) a fine of 40,000 rubles (which is equivalent to UAH 12,000), and 3) deprivation of parental rights [40];

Ukrainian textbooks and books, primarily textbooks on the history of Ukraine, are being removed from school and university libraries, and they have been replaced with Russian textbooks and teaching aids.

Russian occupiers loot and take away the property of educational institutions. The mayor of Melitopol, Ivan Fedorov, said that the invaders had taken away the property of music and art school, which was new, recently reconstructed with the help of European donors. Furniture, equipment, and LED screens [41] were exported;

Russian troops often place warehouses with weapons in the premises of educational institutions; therefore, there is a very high probability of provocations by the Russians, which endanger the participants of the educational process.

Some of the children and young people who remained in the occupied territories continued to study remotely at Ukrainian educational institutions. However, such training faces obstacles, such as: frequent cases of lack of mobile communication; a significant risk is the security situation, as the occupying power persecutes the families of such pupils and students.

5. Problems of security and preservation of infrastructure, personnel potential, and student contingent of Ukrainian universities

Universities, according to the international humanitarian law, are civilian objects without military purpose, so they should not be the object of armed attacks and shelling. However, Russia does not pay attention to this, as in other massive cases of violations of the international legal norms. Therefore, the shelling of Ukrainian universities is a targeted action and not an isolated case. Higher education institutions and their separate units were most affected in those regions located in the front-line zones – Kharkiv (1 higher education institution was destroyed, 23 were damaged), Donetsk (3 HEIs were destroyed, 9 damaged), Zaporizhzhia (5 HEIs were destroyed, 2 damaged), and Mykolaiv (5 HEIs were damaged), but universities in other regions were also destroyed and are constantly in the risk zone [42]. Below, there is information on some cities and universities.

5.1 Information about the destruction of individual cities and universities

5.1.1 Kharkiv

Before the war, Kharkiv was considered to be a student city based on quantitative and qualitative indicators. The city had 40 institutions of higher education, where more than 160,000 students studied, including about 12,000 foreign students. In various international rankings, Kharkiv universities held leading positions among Ukrainian representatives and were consistently included in the TOP-1000 best higher education institutions in the world. The shelling of Kharkiv began from the first days of the war. Most of the city's universities suffered devastating blows: Kharkiv National University of Construction and Architecture, State Biotechnology University, Ukrainian Engineering and Pedagogical Academy, Ukrainian State University of Railway Transport, the building of the National Academy of Management under the President of Ukraine, and Kharkiv Institute of Physics and Technology. The greatest damage was caused to the oldest university of Ukraine, founded in 1804, Kharkiv National University named after Karazin. The building of the Faculty of Economics, Karazin Business School, and the university sports complex "Unifecht" were completely destroyed; two central buildings, the Museum of Nature, and the campus with dormitories were severely damaged. The Faculty of Physics and Technology was under constant shelling, which became one of the most affected [43]. Despite the proposals of the Ministry of Education of Ukraine, the university refused to evacuate to another city, believing that Karazin University is the heart of Kharkiv and their destinies are indivisible. The university created backup facilities (servers to ensure electronic document flow and remote educational process) on the basis of Poltava Polytechnic University and on March 28, resumed its educational and scientific process in a remote form.

5.1.2 Mykolaiv

In the morning of July 15, two of the city's largest universities were hit by shelling: Mykolaiv National University named after Sukhomlynskyi and Admiral Makarov National University of Shipbuilding (NUS). Mykolaiv National University was hit by four rockets that destroyed the facade, walls, roof, and offices and damaged windows and doors, furniture, and equipment. Five rockets hit Admiral Makarov National University of Shipbuilding, as a result of which a fire broke out on a total area of 100 square meters. There was partial damage to the building: two wings of the fifth and sixth floors were destroyed; windows and doors in the auditoriums, reading room, and sports hall were damaged. On August 19, the shipbuilding university was shelled again. Two rockets destroyed the main building, which fell down from the fourth floor to the basement [44].

5.1.3 Kyiv

On October 10, Russia carried out a powerful missile strike across Ukraine, which hit the center of the Ukrainian capital, causing damage to the buildings of the country's main university, Taras Shevchenko Kyiv National University [45].

5.2 Features of the activities of institutions of higher education during the war

Institutions of higher education have a significant specificity of activity during the war, especially in front and near-front regions. The main tasks are to survive and

to provide high-quality educational services, to keep teaching staff and students adapting to new operating conditions. In accordance with the challenges of the war, the higher education institutions of Ukraine took the following ways of solving these tasks: they resumed educational activities at the first opportunity, transferring education to an online or hybrid offline/online format of work; searched for foreign sites for face-to-face training and communication support between teachers and students who have left; intensified the establishment of international partnership relations for support and assistance; and organized admissions process for the 2022/2023 academic year.

It should be noted that the universities lost a significant part of their student contingent as a result of the war. The admissions campaign also highlighted the acute problem of attracting young people to universities. For example, as of September 5, Karazin University received about 7700 applications, Sumy State University got 3800, and Black Sea National University, named after Petro Mohyla, received about a thousand applications [46]. In the previous year, 2021, the number of applications to these higher education institutions was several times greater. As a result of mobilization, migration, and mortality from hostilities, higher education institutions are losing customers of educational services. According to the Ministry of Education and Science, in 2022, 131 thousand school graduates entered higher educational institutions of Ukraine; last year, there were 239 thousand graduates. Such reduction threatens the existence of universities and institutes.

An example of the impact of the war on the universities of Ukraine is the fate of Dahl East Ukrainian National University [47], which was relocated twice from occupied Luhansk and was one of the leading universities of Ukraine before the war. In 2010, the total number of students, postgraduates, doctoral students, and trainees studying at the university in all forms of education was more than 30,000 people. The structure of the university included the following: 8 institutes and 17 faculties in the cities of Luhansk, Severodonetsk, Krasnodon, Rubizhne, Anthracit, Yalta, Yevpatoria, Feodosia, and Skadovsk; Institute of postgraduate education and distance learning; University College; Severodonetsk Chemical and Mechanical Technical School; Centre for pre-university training and career guidance. Powerful material and technical base were located in 57 educational buildings and laboratories with a total area of about 230,000 square meters. There were 8 dormitories with 4000 places, 6 canteens, 12 buffets, medical centers, stadiums, sports buildings, summer sports facilities, and so on [48].

In September 2014, due to the armed aggression of Russia, the university was temporarily moved to the city of Severodonetsk to the Technological Institute, which was the base of its separate structural unit. At the same time, the university lost not only material base but also almost half of the teachers and most of the students. The intense work of employees during 2014–2022 made it possible to restore educational and scientific activities and create new sites and laboratories. In 2021, the university entered the QS Emerging Europe and Central Asia University Rankings for the first time.

Since February 24, 2022, after the full-scale invasion of Russia, Severodonetsk has appeared in the zone of intense hostilities; the university was again moved to new locations – the cities of Kamianets-Podilskyi, Khmelnytskyi, and Dnipro, but later it was forced to move to the city of Kyiv. The university completely lost its material base newly created during the 8 years, 5% of the teaching staff, and more than 50% of the non-teaching staff, as well as the share of students. However, on March 14, 2022, the university resumed online work. The total number of applicants as of June 2022 was 3604 people, of which 1769 people (49%) were ordered by the state and 1835 people

(51%) were paid by individuals, including many who could not pay for education [48]. The university found itself in a very vulnerable position, since all sites in the relocation cities were provided temporarily, and from the side of other universities of Ukraine, there was no support but competition for students.

In her speech at the annual forum of the Federal Demonstration Partnership (FDP), Olga Porkuyan, the Rector of Volodymyr Dahl East Ukrainian National University, vividly spoke about the destructive impact of the war on the educational and scientific environment in Ukraine: *the physical destruction and destruction of university buildings and other institutions, the material base, infrastructure as a result of shelling and bombings; difficult psychological condition of teachers, scientists and students due to the loss of loved ones, housing, property, constant danger and uncertainty, unsatisfactory everyday opportunities for work; a significant decrease in the funding of scientific research; closure of some scientific projects; loss by universities of traditional customers of scientific developments and scientific-technical services in connection with the closing of industrial enterprises, their destruction or the impossibility of evacuating business from the occupied territories; dispersion of scientific personnel throughout the country and abroad, which may lead to the disintegration of scientific schools; disruption of the usual connections among various institutions, impossibility to implement some joint projects* [49].

Despite all the losses and difficulties, the team of Volodymyr Dahl East Ukrainian National University continues to provide educational services and tries to survive and preserve its university in these difficult conditions. For this purpose, the Strategy of the university in the conditions of evacuation - 2.0 (2022–2023) was developed and approved by the decision of the Academic Council of the university on September 30, 2022. The strengths of the university include the presence of experience in restoring activities and adapting to new conditions after relocation, as well as significant adaptation potential of employees. Strategic directions of the university are the following:

- quality of education: restoration of the educational process and educational activity;
- science and research: preservation and development of scientific potential;
- development of Dahl community: values, communications, and reputation;
- internationalization of educational, scientific, and social activities: expansion and deepening of cooperation with foreign partners and international organizations [48].

6. Immediate and long-term consequences of the war for higher education in Ukraine

The Global Coalition to Protect Education from Attacks notes that violent attacks on higher education occur in many conflict situations around the world and have a detrimental impact on higher education, destroying critical educational infrastructure, depleting valuable resources, and creating obstacles to educational access, achievement, and quality. All these factors also can be applied to Ukraine. As noted by Sameerah T Saeed and Patrick Blessinger (2022), educational systems often face problems due to low resistance to conflict. Conflict can have devastating consequences in contexts where educational systems are unstable or under-resourced.

An example is given of the war in Iraq, where the chaos and displacement of millions led to the destruction, looting, or burning of 84% of higher education institutions [50]. Ukraine has a fairly developed education system, which is characterized by considerable stability. Therefore, military actions caused significant damage to it but did not completely destroy it, as evidenced by the continuation of the educational process at both schools and universities, which, in the conditions of the war, not only provide educational process but also hold scientific conferences. The war continues, and the sum of losses for higher education in Ukraine has not yet ended. However, we can already talk about the short-term and long-term consequences of the war for the higher education system of Ukraine.

6.1 Problems of higher education in Ukraine during the war and approaches to their solution

The war started by Russia has caused a number of serious current problems in Ukrainian higher education as follows: forced resettlement of a significant number of students and university teachers to different regions of Ukraine and abroad, which disrupted the normal process of communication and cooperation in the learning process; the destruction and damage of educational institutions as a result of hostilities and missile attacks—the impossibility of their restoration during the war; a significant decrease in the financial resources of higher education institutions and opportunities to support educational infrastructure and material incentives for employees of higher education institutions; frequent interruptions in the educational process due to hostilities—risks during missile attacks, lack of electricity and the Internet, which lead to a decrease in the amount of educational material provided during classes and worsen the assimilation of knowledge and lower the quality of education. All these negative processes have led to the fact that the operating conditions of higher educational institutions of Ukraine significantly have worsened due to the loss of material and human assets, decrease in the number of students, which has put many higher education institutions on the verge of survival.

At the same time, the war has forced higher education institutions to mobilize and adapt their activities to new challenges and conditions. To ensure the educational process, the Ministry of Education and Science of Ukraine and institutions of higher education have transformed the organizational forms and methods of higher education in the conditions of military operations, which includes the following [37]:

- expanding the autonomy of higher education institutions in the organization of the educational process. Decisions about the training format (online or offline) and its calendar schedule are made by the administration of higher education institutions from a safe position for students and teachers;

- extensive use of digital technologies in the educational process to ensure distance learning process, improve qualifications of the teaching staff in the field of digital skills, and develop distance courses;

- organizational and legal support for the transfer of higher education institutions from the occupied and front-line territories to safer regions;

- support of forced national and international academic mobility of students, as well as referral to study at foreign universities;

- provision of special support to residents of temporarily occupied territories to continue their studies or enroll in Ukrainian institutions of higher education;

- development of research activities of universities, including those related to solving problems of crisis situations, with the needs of defense;

intensifying contacts and expanding partnerships with foreign universities and colleges in educational and scientific activities, using various forms of international cooperation to preserve the educational institution and solve its problems.

As Anatolii Babichev, Vice-Rector for Scientific and Pedagogical Work of Kazarin Kharkiv National University, stated: “Today, the university has more opportunities than there were before. Today we started to find even more new friends, new partners. Before the war, for about 20 years we were engaged in the branding of the university. And it was during the last six months that we managed to move on. For example, our alumni associations around the world became more active and began to take a more active part in the life of the university. In addition to humanitarian and financial aid, more partnership proposals and new projects began to appear” [46].

The challenges caused by war in the long term create new opportunities for the transformation of the higher education system to a new qualitative level. According to Sameerah T Saeed and Patrick Blessinger [50], “after the war in Ukraine, higher education institutions will be forced to adapt to new realities and opportunities. The devastation left behind by the conflict will give universities an opportunity to rethink their role and their place in society.”

War and destruction should become an impetus to change approaches in the restoration of the higher education system of Ukraine. It should not be just an improvement of the existing system, which in many respects is a legacy of the Soviet Union, but the creation of an innovative model of higher education that is able to respond to the challenges of modern society. The National Declaration of Ukraine on the commitment to transform education, posted on the website of the UN national declarations, states: “It is necessary to carry out system-wide transformations, including the use of flexible teaching methods, rapid response to changes in the security situation, implementation of catch-up programmes and tools based on in-depth training and skills gap assessment” [51].

6.2 Formation of new vectors of development of higher education in Ukraine

The Ukrainian system of higher education will not just have to be rebuilt but radically reformed, which is facilitated by the transformations accelerated by the war, which form new vectors of development of higher education in Ukraine.

6.2.1 Flexibility and adaptability

During the war, the level of flexibility in the organization of university activities increased. This process should be expanded, especially with regard to the content of education and the formation of modern competencies, which must be radically revised in accordance with the trends of the national economy, labor market demands, and personnel needs of Ukraine both during the war and for the reconstruction of the economy. The Institute of Educational Analytics has developed proposals for changes in the directions and scope of personnel training in the war and post-war period [52]. Most universities have already started to do this; for example, Vayl’ Stus Donetsk National University has introduced the Master’s educational program “Management of post-conflict territories” [53].

6.2.2 Broad implementation of information technologies

1. deepening of the digital transformation of the educational process. It is due to digital technologies that Ukraine has managed to ensure the continuity and safety of the educational process in the conditions of military operations.

The application site “All-Ukrainian School Online” has been developed, where all educational materials for pupils and students of grades 1–11 are posted. Ukrainian TV channels broadcast video lessons for schoolchildren in grades 5–11 as part of the “Education without Borders” project [54]. All universities have switched to online education. Currently, all university teachers have mastered the distance learning method and developed online courses in their subjects. This policy should be further expanded and deepened by building an ecosystem of digital education;

2. the use of artificial intelligence (AI) in HEIs, which is currently actively involved in leading countries to improve the quality of education. Education with the involvement of AI allows to personalize learning, taking into account the individuality of a student, and to deepen its content.

6.2.3 Development of university science

The war has shown that the loss of a university’s scientific potential can put it beyond the limits of survival. University managers have felt and understood this. “If there is no scientific and industrial growth in universities, then they will not have a future,” said the rector of Sumy State University, Vasyl Karpusha, at the online discussion “Universities in the Line of Fire” [46]. Therefore, better conditions should be created for the generation of new knowledge by university scientists and their implementation both in the educational process and in the sphere of economic activity. The development of the research and production potential of universities and strengthened cooperation with business and foreign partners in the field of science should be ensured. It should be noted that in this difficult time, most universities organize and hold scientific conferences, present their scientific works, and, at the same time, involve international partners in them.

6.2.4 Activation of international cooperation

The war has given a powerful impetus to the establishment of contacts with foreign partners. International academic and scientific cooperation should be strengthened. Many international projects and Ukrainian initiatives contribute to this. Thus, the “Twinning” project has united almost 90 Ukrainian universities with foreign institutions of higher education for long-term cooperation. To date, 144 universities from Ukraine have registered to participate in the project. Thanks to the support of the Association of Universities of the United Kingdom, leading British universities have joined the project, and their example has intensified interest in the event of universities of the EU, Canada, the USA, Australia, and New Zealand [55].

6.2.5 Optimizing the number of higher education institutions

Ukraine currently has an excessive number of various institutions of higher education, among which many are small and are unable to provide high-quality education services. The task of optimizing their number has long been relevant. The war has accelerated this process, which can be seen on the example of individual displaced universities, which took the path of unification in order to strengthen the educational and scientific potential. Thus, in 2022, Luhansk National Agrarian University was reorganized into the Agrarian Faculty of Volodymyr Dahl East Ukrainian National

University [47]. The government plan for the post-war recovery of Ukraine, in the section on the recovery of education and science, provides for the reorganization of higher education institutions by creating one large regional university on the basis of existing higher education institutions [56]. This requires a balanced approach, which cannot be implemented by administrative coercion but only on the basis of achieving competitive advantages in the field of providing educational and research services. This approach cannot be applied to large educational centers, such as Kyiv, Kharkiv, Dnipro, and Lviv, where several powerful universities operate.

6.2.6 Expanding financial autonomy and changing economic status of universities

The financial support of higher education in Ukraine has always been insufficient, since 63% of higher education institutions are state-owned, and the state provides 77% of the total volume of financing of higher education [57]. As a result, most universities had a shortage of funds, which did not allow modernizing educational and research base of universities and providing decent remuneration for university teachers. A low level of financial autonomy does not allow managing available funds and property and attracting investments from businesses and grants from foundations. The war has reduced the possibilities of state financing of education, and the ability of households to pay for higher education services have also deteriorated. Therefore, the financial condition of universities has deteriorated significantly. In the field of higher education, there is an urgent task of changing the management system and providing financial autonomy, which is possible through the corporatization or privatization of universities, creation of endowment funds, and widespread introduction of the system of long-term interest-free loans for education.

The war has presented many serious challenges to the education of Ukraine in the field of education functioning and the formation of highly qualified personnel for the war and post-war economy as follows:

firstly, the creation of safe conditions for education and training of higher education personnel now, in the conditions of military operations, which is an obvious condition for the survival of education and prevention of its destruction. This is done by setting up a safe shelter in educational institutions for the organization of stationary training and by switching to a distance form of training;

secondly, restoring normal learning process and improving the quality of education. Constant interruptions in the learning process and its instability in the conditions of frequent power outages and the Internet reduce the quality of the educational process. This is also due to the transition of many higher education institutions exclusively to distance education, which requires a high level of self-organization of students to master academic disciplines. In order not to lose the current generation of children and youth in terms of education, conditions must be created for a faster return to classroom forms of education;

thirdly, preserving the contingent of students, including those who have gone abroad, and providing, if possible, quality education for the formation of sustainable knowledge and professional competences. This is done through the development of modern online courses in all subjects and methodical online provision of practical classes and knowledge control, the use of individual approaches and flexible asynchronous forms of work, and the development of educational video content. However, the lack of live contacts does not contribute to strengthening the university community;

fourth, preservation of personnel potential for further development of the higher education system in the war and post-war periods. This is one of the most important aspects, since many teachers have left Ukraine. Therefore, it is necessary to develop programs for the return and support of professors and teaching staff of universities, training of graduate students and doctoral students, the implementation of scientific projects, and active development of cooperation with foreign universities and colleagues.

It is clear that solving most of the current problems of higher education and creating conditions for its development are possible only after the end of the war. At the same time, the development of international cooperation in the field of education is very important.

7. Conclusions

The war started by Russia has caused enormous damage to the education system, which creates great risks for the post-war development of Ukraine. The following conclusions were made on the basis of the conducted research.

The increase in global instability and the prevalence of armed conflicts in the world endanger the education system and human development of the countries on whose territories military actions are taking place. This also applies to Ukraine as a result of the war unleashed by Russia back in 2014, which took place initially in a hybrid format, and from February 2022, is taking place in the form of a full-scale armed confrontation, covering almost a fifth of the territory of Ukraine. Currently, brutal military actions threaten the lives of the population, economic and social spheres, including higher education, which is of key importance for the formation of the country's human and intellectual capital, the formation of the worldview, and the future of the nation.

Many international organizations, including UNESCO, UNICEF, and the Global Coalition for the Protection of Education from Attacks (GCPEA), take care of the problems of education in the conditions of armed conflicts and are also analyzing the state and problems of education during the war in Ukraine and providing various assistance. Education in the conditions of war is the object of analysis by numerous foreign and domestic researchers who study various risks and losses in the field of education and their threats to society. The purpose of the author's research is to analyze the impact of the war in Ukraine on the system of higher education, the losses suffered and the forced transformation processes that form new vectors of development and modernization of higher education in the course of post-war reconstruction.

On the eve of the 2022 war, Ukraine had a significant number of higher education institutions capable of training specialists for the economy. As of February 10, 2022, there were 336 universities, academies, and institutes and 96 schools, technical schools, and colleges in which 1.34 million students studied. Over the past two decades, the system of higher education has been gradually modernized; the process of its integration into the European Higher Education Area has intensified, which has contributed to the improvement of the positions of Ukrainian universities in international rankings. Despite the existence of many problems in higher education in Ukraine, it developed in accordance with the world trends, but this development has been interrupted by Russia's armed aggression.

The consequences of the 2014–2021 hybrid war were significant losses of the territory, economic potential, and gross domestic product and a large number of internally displaced persons. For higher education, this led to a significant reduction in budget

funding; the loss of a part of universities and colleges, the student contingent, and teaching staff who remained in the occupied territories; and switching to studying according to Russian programs and standards. On their own initiative, 18 universities relocated to the territory controlled by Ukraine and had to resume their educational activities with great difficulty.

The full-scale war of 2022 has led to significant destruction of higher education institutions, mass internal and external migration of students and teachers, and suspension of the educational process and its transfer to a distance format. Currently, 131 institutions, or 5.5% of all institutions of higher education, have been destroyed or damaged. The higher school has lost a significant part of teachers and students as a result of migration and mobilization—a large number of them voluntarily joined the armed forces and territorial defense. Despite the fact that the educational process has resumed mainly in a distance format, frequent and long power outages and the absence of the Internet make effective learning impossible. As a result of large-scale destruction and violations of the educational process, Ukraine is at risk of losing the current generation of children and youth in terms of education, which will negatively affect the formation of the country's human capital.

At the same time, the war accelerates educational transformations that form new vectors for the development of higher education in Ukraine. These include the following: increasing the flexibility and adaptability of higher education institutions, wide implementation of information technologies in the organization of the educational process, stimulation of the development of university science, activation of international cooperation, optimization of the number of higher education institutions through their integration and consolidation, and expansion of financial autonomy of universities. This will make it possible to ensure the post-war development of higher education in Ukraine and its effective integration into the European area of higher education.


Currently, higher education in Ukraine needs to strengthen the protection against military attacks and destruction. Sansom Milton, Ghassan Elkahlout & Sultan Barakat [14], based on the analysis of international experience, systematized main areas of protection, such as the following: limiting the military use of university premises; strengthening university autonomy to protect higher education from politicization and ideological manipulation; physical protection, including blast-proof walls, shatter-resistant glass, and surveillance cameras; supporting the mobility of displaced students, scientists, and universities to leave conflict zones; alternative distance forms of higher education; and university conflict preparedness – training on what to do during attacks, developing evacuation plans and sharing information during crises. Ukraine uses most of these directions. At the same time, the experience of organizing training during the war in Ukraine has revealed the need for broader measures related not only directly to educational institutions but also in general to the protection of infrastructure. In conditions of high risks of massive rocket attacks, this concerns primarily the protection of energy and utility infrastructure, since power outages and Internet absence do not allow universities to organize training even remotely.

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Perspective Chapter: Reflections from the Field – The Struggles of a Senior Manager in Pursuit of Social Justice and Equity, the Case of Walter Sisulu University in South Africa

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“We will not go quietly! We have been screaming for too long!.....if we are sentenced to death,I should go to the gallows singing, in order to indicate my determination for the other people who may come”

President Thabo Mbeki, 2021 [1]

Abstract

In this chapter, I provide a perspective about what can constitute the struggles of the educational development practitioner for social justice and equity from the position of a senior manager. I enunciate the case of three crisis events about educational development from the social realist explanatory program, which draws on the critical realist philosophy, by arguing that what can be the crisis cases in the academic project can take place because the actors in such cases might be informed by the privileged discourses of economic rationality and neoliberalism (ER-NL) instead of social justice and equity (SJ-E). The instrumentalist and personal interests can allow for what can ultimately become more of the reproductive than what ought to be transformative outcomes. Such cases are antithetical to the value of university education as the public good. The analysis about the cases took a particular focus on the university education phase of its development as the two management and governance regimes were grappling with the institutional transformation change in general and the challenge of the academic project. The scholarly engagement of the cultural and human systems for some crisis events during the “change of guard,” albeit with demonstrable silences about the critical construct of quality enhancement, allowed for what could be finally declared as the exploratory research. The significance of such exploratory research is thus the advancement of what ought to be the theorization and conceptualization about social practices in contexts of historical and structural disadvantage and their expressively veracious considerations.

Keywords: social justice and equity, Walter Sisulu University, academic project development framework, integrated quality management systems, decoloniality

1. Introduction

The main goal and objectives of this article are to reflect on the important aspects in the academic project as the discursive spaces for social justice and equity (SJ-E), which are enacted by agency. By the academic project, the article refers to the main elements of intellectualism in university education, which entails knowledge production, utility, and embodiment, and how the utility dimension in particular ought to constitute the struggles of the senior managers in education institutions. When some crisis events were reported as corporate social irresponsibility in one case of a university education in South Africa [2], not much was discussed as the idea of social justice and equity at the systemic levels of academic leadership and of management systems before the corporate level. To close the gap, this article revisits that discussion under the new topic, as an elaboration about the agenda for excellence which needs to be understood and explained as the concerns, choices, and projects about the idea of university education and for advancement of human flourishing. In a university education context, the latter refers to the constitutional imperative about the equity of epistemological access for the quality of academic success.

The main thesis for this article is that the struggles of the oppressed against the intransigence of the powerholders constitute the interplays between human nature and the objective conditions. Such struggles become more dynamic and developing when what ought to be the right choices and the emancipatory projects in contexts of historical and structural disadvantage seem to be promoting the economic rationality based on neoliberal thinking than what ought to be the enhancement strategies for human flourishing. For example, academic excellence, practical wisdom, and institutional integrity, as espoused values in one case of university education, could be easily undermined at the point of leadership, management, and governance systems, unfortunately by the very custodians of such systems. Such can be the dialectical relationship of human nature and the objective material conditions in which the human systems, for example, a senior manager, ought to engage both the idea of university education as the structural system, but most significantly, as the cultural system, and in that way providing what could be the practical alternatives to economic rationality and neoliberal thinking. Progressive and reconstructive forms of social justice and equity can work well for an institution, which makes the right choices and embarks on the emancipatory projects that can promote and monitor for academic excellence in ways that are both relevant and responsive to the profiles of students the institution registers in its academic programs.

Therefore, *Reflections from the Field* was about the journey, the “agenda for excellence” when the right choices and emancipatory projects about social justice ought to be enhanced against the backdrop of economic rationality and neoliberalism (ER-NL). The cases indicated how the instrumentalist and personal agendas can be quite enduring, which therefore constitutes more of the continuities than the discontinuities from the old regimes of order and of truth. Despite the affected students, having inherited the social and sociocultural conditions, which were never of their own making, such conditions would remain enduring. The scholarship value for such an agenda was, therefore, about engaging the iterative events and processes about the academic project, by focusing on what were apparently the synchronous and diachronous structural mechanisms over time as a social realist account about the struggles of the oppressed against the intransigence of the powerholders.

The *struggles of a senior manager* constituted the call for deep dialogs and sustained conversations about the struggle of the oppressed against apathy, which

can play out in three ways the inaction of those who should have acted, the indifference about social injustice, which can be explained only as the perpetuation of the status quo, and ultimately the silence of the voice for social justice and equity, all of which the powerholders can be quite complicit. In that way, scholarship about the ideal of the equity of student access for the quality of academic success in university education ought to entail the knowledge of and for excellence in context-specific and actor-driven ways. That is only possible when the notion of knowledge can be deconstructed as the idea of Being and Becoming about social justice and equity, and thus making explicit the need for a backlash to the mainstreamed discourses! Such struggles need not be regarded as a precedent or misguided facts about students autonomous learning, that is, when the students, for example, cannot be held accountable for learning. However, such struggles call for reflexive praxis on the part of the broader academic enterprise, when, on the part of staff, academic freedom cannot remain unfettered, and on the part of the institution, such struggles can be the case of unmediated institutional accountability.

Therefore, against this brief introduction and observations, this article is organized around the basic logic of reproduction-understanding-broadening-advancement in research. While the SJ-E projects are generally understood to be the main project of the university education, especially in the Global South-South context, its mainstream practices need to be theorized by drawing from powerful lenses, especially for the university education sector, which is fast embracing the business management models as part of its management, leadership, and governance systems. Such broadening strategies about the concept will potentially advance the scholarship about the concept, especially in consideration of what could be value addition when the academic project and quality can be understood as dialectically related more to the social justice discourses than the mainstream cases of ER-NL. As such, the article is structured according to the following main sections,

- a. The discussion of social, justice, and equity as a concept, which needs to be central to the value of an academic project in the Global South-South context and its idea of university education for the public and common good.
- b. The examination of the relevant philosophical and theoretical perspective for better understanding and explanations of the contemporary challenges about the concept (SJ-E).
- c. An outline of the historical and developmental phases in one case of university education whose academic project was punctuated, over time, by glaring crisis points, and thus raising the concerns and projects on the part of the actors thereof.
- d. A social realist account of the dissonances and discrepancies in the aspirations and reality about the academic project and its actors at the levels of academic leadership, management systems, and governance structures when the SJ-E discourse ought to be measure.
- e. A discussion about the value of transformative agency, including the rationale for why SJ-E in the academic project still needs further iterations as the subject of scholarly inquiry in context-specific and actor-driven ways.

2. The complexity of power relations in the politics of being and knowledge

The need for understanding and explanation of the SJ-E project in RSA has its roots from the inception of the current constitutional democracy. *The White Paper III on the Transformation of Higher Education in South Africa* [3] outlines several principles and the following one is quite illustrative about the issues at hand in this chapter.

“Promote equity of access and fair chances of success to all who are seeking to realize their potential through higher education, while eradicating all forms of unfair discrimination and advancing redress for past inequalities.” (p.14).

To realize this principle, the National Plan for Higher Education [4] would be quite explicit about the need to produce the graduates needed for social and economic development in South Africa. Furthermore, the Higher Education Act (101 of 1997, as amended) [5] would empower the department of education with the responsibility to develop policies and regulations to govern the public university system in South Africa. The Act also served as the basis for the establishment and governance of all universities. The development of the system would be steered through three key mechanisms linked to the implementation of legislation, policy, and regulations: planning, funding, and quality assurance. Such mechanisms would be implemented in three points of national agency,

- a. The National Department of Education (later to be renamed Department of Higher Education and Training) in terms of planning and funding.
- b. Quality assurance and promotion as the mandate of the council on higher education (CHE), and
- c. The South African Qualifications Authority on program registration after accreditation by the CHE,

Therefore, the policy choices and strategic plans going forward would have to be measured against such noble foundations and principles, especially in consideration of social inequalities and the equity imperatives, which had their origins from the structured racist apartheid system. Such choices and plans would perhaps take the main variables, drawing from the realist stance (to be explained later), about

- a. The significance, the character, the trajectory that each transformation phase would take, and about
- b. The dynamics involved in the transformation project in the complex relationships of structural, cultural, and human systems.

Quite earlier on after the advent of constitutional democracy in South Africa, two observations were made about the state of the university education both at global and in the South African context. The first, and at a global context, was raised by [6] in his reference to, “The university without condition.” The second, at the local context, one was raised 3 years down the line, by [7] when he raised a rhetorical question, “When does the university cease to exist?” Then, two logical questions can emerge from the two observations. The first, is, what are these conditions that seem to make

a university to cease? The second, what is in the nature of a university, anyway, that can be a subject to conditions that make its being to cease? The assumptions for such questions, which would be in line with the observations, would be what a university identity is, as a 'Being', suggests what it is not, which is a presupposition. The implications thereof, in turn, is that, while university education is a national project, its existential nature is also in terms of the global developments.

Therefore, it would make the major constitutional imperative to understand the value of the SJ-E projects, where the university education system ought to play a prominent role. The constitution of South Africa requires that no section of society should be unjustly and unfairly excluded from opportunities, resources, benefits, and privileges. In fact, Section 33 of the Constitution (RSA, 1996) declares that.

"Everyone has the right to just administrative action that is lawful, reasonable, and procedurally fair."

2.1 The Main discourses about university education

To further elaborate on the idea of a university as briefly alluded to above, one more source is quite significant for the required descriptive analysis of the struggles of a senior manager as discussed in this article. Firstly, [8] provides what could be regarded as the instructive cases about the importance of a discourse in our understanding of university education, and why it becomes a subject of transformation. The first major discourses, from [8], for example, relate to the nobility of the enlightenment values (truth and emancipation) as democracy, truth, citizenship and social justice, and equity. The second is the economic rationality discourse, which is linked to the imperative of knowledge economy and its related narrative of skills development. What is of interest for me are the discursive resources that university education practitioners can draw on for the truth about and the emancipatory choices and project about the other, at the local and implementation level.

2.2 Social justice and equity as the main objective of university education in the global South-South

Contemporary theories, namely, critical realist-oriented theories challenge the mainstream theories that have as their tenets based on the deontological positions and the self-referential explanations. Such theories tend to be dislocated from reality about a social reality/phenomenon. To counter such a weakness, critical realism allows the analyst to adopt a paradigm that is commensurable with the context and in ways that can be culturally relevant. By the power for transcendence, the analyst is then able to question a type of science (pseudoscience) that selects what counts as reality and what reality to count to promote interests or socially constructed views. Therefore, a social justice project that seeks to reflect university as a public good ought to adopt a kind of descriptive analysis that reflects these complex issues about a social phenomenon. For example, a consideration of Nancy Fraser's framing of social justice, [9] is helpful to identify the political and economic dimensions of social justice that, with knowledge systems thereof allow for the understanding of the complexity of the transformation project in the South African in context. This is the context, which is still steeped in and conditioned from the past system of social inequalities. Fraser has always viewed social justice from the perspective of participatory parity — how social beings are able to participate as equals, but she originally saw it from a two-dimensional perspective (recognition

Dimension	Social Injustice	Affirmative response: addresses injustices with ameliorative reforms	Transformative response: addresses the root causes of inequality
Political	Misrepresentation, lacking right to frame discourse, norms, and policies	Representation, of social being	Reframing, of parity and rights
Economic	Maldistribution, of resources: economic inequality	Redistribution, of resources	Restructuring, of economic model
Cultural	Misrecognition: attributes of people and practices accorded less respect, status inequality	Recognition, valued, respected, esteemed	Re-acculturation plurality of perspectives, but always fallible

Table 1.
Conceptualization of Fraser’s social justice and equity framework.

and redistribution) — called a two-dimensional view of social justice. She now includes representation as another dimension into this view and calls it a three-dimensional view of social justice and she calls this a theory of post-Westphalian democratic justice.

Table 1 indicates Fraser’s three-dimensional theory of justice that can help to illustrate why, when the logic of university education ought to be about the public good, the results of the transformation project remain more reproductive about academic quality than transformative. It is when such a logic is based on the notion of social justice from the lens of participatory parity and equitable redistribution of resources. From a realist ontology stance, one would have to consider the political and economic dimensions as disentangled, and also how each of these dimensions is also taken upon as the cultural dimensions in open and complex social systems.

3. Surfacing the ontological assumptions about social justice and equity

Both the introduction and the discussion in the previous sections have briefly referred to the ontological assumptions that one can draw upon to understand and explain the dynamics about social justice and equity. In response to the need for human flourishing, the social world can be analyzed and discussed from the realist social theory, which allows for understanding and explanation of the social phenomenon as a dialectical relationship of structure, culture, and agency. Such a scholarly project requires for the understanding of the interplays of the latter in analytically distinct ways. In that regard, this article is contributing to the fastincreasing body of knowledge, by focusing on the value of agency as the subject of research. Therefore, the related questions, as the motivation for the critical realist-oriented research project, in this article, are,

- a. What constitutes the idea for university education if it is not about access to the public and common good aptly expressed as the academic/intellectual project?
- b. If the answer to the latter is in the affirmative, how could such a project reflect social justice and equity as a value system, and how such a system can be enacted in systemic ways?

Table 2 portrays what [10] describes as the three domains of the empirical-actual-real in his explication of the critical realist theory. The life world is made up of the

transitive and intransitive nature of the objects at the domain of the real, which can allow themselves or not as the subject of our inquiry. What then leads the critical oriented analyst is the transcendental question, that is, making an educated guess about what could be the structural mechanisms/conditions at the domain of the real, which can allow for the events and processes to be realized at the domain of the actual and further to how such events are experienced and observed at the domain of the empirical. The realist position about such dynamics of the social phenomenon is that the properties and powers of the subject of inquiry may lie dormant at the real, and not realized as events, but remain active. The same applies about the domain of the actual and the empirical. Understanding the subject of inquiry as deep ontology, as stratified reality (from right to left of **Table 2**), and as emergence (from left to right) then provides for a powerful way of explaining the dynamics of the complex and open social systems, for example. The simple analogy about this logic is that a tree may fall in the forest without such event being experienced. Let alone that such trees do grow as events, in particular ways, which may be transitive or intransitive to our reasoning. Such is the value of emergence in understanding and explaining the open and complex social systems, according to the critical realist philosophy. But how would such social systems be explained in terms of time and space?

Table 3 elaborates on the power of emergence as reflected in **Table 2**, by adding the dimension of structural, cultural, and human systems as operating in terms of time

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms,	◇		
events, and processes	◇	◇	
Experiences and opinions	◇	◇	◇

Table 2.
 The three domains of reality [10].

<i>Structure</i>	_____ <i>Structural conditioning</i> _____		
	T^1		
	_____ <i>Social interaction</i> _____		
	T^2		T^3
	_____ <i>Structural elaboration (Morphogenesis)</i> _____		
			T^4
	[Structural reproduction (Morphostasis)]		
<i>Culture</i>	_____ <i>Cultural conditioning</i> _____		
	T^1		
	_____ <i>Socio-cultural interaction</i> _____		
	T^2		T^3
	_____ <i>Cultural elaboration</i> _____		
			T^4
<i>Agency</i>	_____ <i>Sociocultural conditioning of groups</i> _____		
	T^1		
	_____ <i>Group interaction</i> _____		
	T^2		T^3
	_____ <i>Group elaboration</i> _____		
			T^4

Table 3.
 Archer's morphogenetic approach [11].

and space. The value of **Table 2**, as representative both of critical realism philosophy (the three domains about reality) and social realism (the social world as organized in terms of the structural, cultural, and human systems) is about thinking, hypothetically speaking, about the elements of structure, culture, and agency (SCA) as analytically distinct and determining causal efficaciousness (the relative weight of each element on the other, especially structure, culture as sense and meaning making expressed as beliefs, norms, and standards). In this way, the structural and cultural systems take the macro level, which is enduring because it derives from history and social relations, to which the human system responds, but at the micro level, hence it is regarded as the level of mediations. Therefore, a study that draws on the social realist theory as an explanatory program, which is anchored on the critical realist philosophy, seeks to analyze, and explain these SCA interplays, as the synchronous and diachronous structural mechanisms, which are emergent (**Table 2**) and over time (**Table 3**, resulting in either the state of morphogenesis or morphogenesis or the variation of the outcomes).

To elaborate on Fraser model [10], and from the point of realist ontology, it would, therefore, be helpful to delineate the three dimensions as historicity of emergence, as an analysis of the conditions that allowed for what is actualized and further observed and experienced as social injustice, as affirmative actions about such injustices (for example, the profiles about the third band universities [2], which tend to be ameliorative than disruptive about the injustices of time and space. The value of this realist approach, where social reality is understood as deep, multi-layered, and complex, is to allow for how what appears as social ills can then be evaluated, and thus improved in sustainable ways. To illustrate this point, [11], for example, makes the following conclusion about the value of what could be a realist-oriented method for such an evaluative exercise.

“If improvement is the purpose of evaluation, then it needs a theoretical frame that can hold both a recognition of the independent, material reality of the world (ontological realism) and a recognition of the constructed and partial nature of people’s interpretations thereof (epistemological relativism) while keeping ontology and epistemology analytically distinct.” (p.11).

For example, the level of social injustice (**Table 1**) is quite typical of the old racist apartheid system in the South African context, which is still conditioned in the structural and historical disadvantage (**Table 3**). The affirmative responses about social justice and equity indicate when the idea of university education as the public good (assumedly as the progress that the new democratic state has made) is not transformative enough to address what could be the actual root causes, which is the ideal level of emergence (**Tables 2 and 3**). In this case, the current profiles of the university education sector in South Africa (RSAHET) [2] constitute a state of illegitimacy for some when the notion of the public good seems to be more about the reproductive outcomes (in this case, students from working-class families who happen to be the main feature of the historically disadvantaged universities and their low teaching and research outputs) than what ought to be the transformative outcomes. The main challenges about the RSAHET sector are, therefore, when student-staff-curriculum/knowledge profiles are framed as progressive and socially reconstructive, while in fact, they remain reproductive of the historical and structural disadvantage. This happens when university education, although it is espoused as the public good, its power relations, and the materialist conditions reinforce social injustices, or do not go far enough to yield transformative outcomes. In that case, while the transformative outcomes are espoused, the actual results can easily be affirmative responses basically due to the default positions

and the fault consciousness about how the relational nature of power and economics might be perpetuating social ills, namely the disadvantage, exclusion, and marginalization of one (the oppressed) by the other (the powerholders). It takes consciousness about these relations as mired in complexity that such social ills might be abolished or at least be ameliorated. In this way, Fraser's theory of social justice (**Table 1**) allows for the understanding of the university profiles, and further to the discussion of the transformation constraints, as the evidence of the imperatives of social justice and the ideals of humanity not yet realized. The realist lens thereon allows for a critique of the transformation project about quality (**Table 3**) as the result of structural and causal mechanisms and their emergent powers and properties (**Table 2**).

From this point, the main sections of this article refer to the one case of Walter Sisulu University in South Africa, where the author had to engage the three crisis cases of academic exclusions, program accreditation, and institutional quality audits, which would play out in explicit ways in 2019/20, 2021/22 and in 2023, such developments were the result of the historical and structural disadvantage. The article then provides a normative description of these crisis cases as emergent from the previous phases about the institutional transformation project, applying both the critical realist analysis and the social realist explanation in such cases, and thus allowing for the ideal of the theory-methodology-practical program, which is required for any project about scholarship, before the conclusions can be made.

4. A University in pursuit of identity and importance for the public good

The case about Walter Sisulu University (WSU) is its power to present the opportunity about understanding and explanation of academic project as the struggle terrain of a senior manager in pursuit of the agenda for excellence as social justice and equity. For this article, WSU was chosen by means of convenient and purpose sampling. The critical element was access to the data, amongst which were the organizational records and the personal experiences and observations of the manager, at least per the critical realist and social theory (CRST) (**Tables 2 and 3**). Critical about WSU was the first national institutional audits, which took place in 2020/11 and the second one in 2022/23. The second audit coincided with the change of guard at WSU, which would usher in the new institutional strategic plan 2020–2024, *“An Impactful and Technology-infused African University,” a university “In Pursuit for Excellence.”* What would remain quite instructive, for the purposes of the discussion in this article, would be the potential continuities from the old regimes of power and of truth, as evidenced in the crisis events during the transition from the previous regime of 2015–2019, *“An Engaged University for Rural Development and Urban Renewal.”* Therefore, this article *problematizes* this issue of potentially self-reproductive systems as the challenge of practice, and thus of the theory about social justice and equity by situating the case of a senior manager whose story is reflected in three main crisis points about his struggle for restorative justice for all.

Table 4 provides the context in which the senior manager had to pursue the SJ-E choices and projects. Soon after the WSU establishment as the result of the merger of three legacy universities, the Assessor Report by the National Ministry of Education called for the institution of the Administration Regime (2012–2013), which would have to release the executive management team and to disband the university council by taking over its powers. This Administration Regime also had to respond to the first institutional audit report of 2011, which had foregrounded, amongst others, the crisis event of student exclusions, while still grappling with the enduring challenge of program accreditations.

Institutional Key Performance Areas over time	Phase I (2005–2011)	Phase II (2015–2019/20)	Phase III (2020–2024)
	A Development University, which is Scientific, Innovative, Technological, and Entrepreneurial	An Engaged University for Rural Development and Urban Renewal	An Impactful and technology-infused African University. “In Pursuit of Excellence”
<i>Institutional Strategic Planning and Implementation for viability and sustainability</i> [12–14]	<i>Upon the university merger of 2005, which ushered in the new substantive regime of 2006–2011 (Phase I), the DoE Assessor Report about the Governance Crisis at WSU: Dissolve the University Council, release the Executive Management, and subject the University under Administration</i> [12]	<i>Phase II is consequent to the Administration Regime of 2012–2013, and the Interim Phase of 2014–2016, when the Vice Chancellor assumed Office in March 2016 to 2020</i> [15]	<i>Phase III refers to the current Regime of 2020/21 to 2024/25, the phase of an Impactful and Technology-infused African University. A University in “Pursuit of Excellence”</i> [16]
	Recommendation 2: “The HEQC recommends that Walter Sisulu University develop a distinctive and unique niche for itself as a developmental university, benchmarked against other institutions, and taking into account the human, financial and physical resources available to it”, p.10.	<i>To implement the Divisional and Governance Model for institutional viability and sustainability</i> [12, 15]	<i>The university is rocked by a very scathing Institutional Audit Report on the 3rd year of Institutional Strategic Plan 2020–2024</i> [14, 16] <i>Local media captures the saga as, “Official audit identifies serious flaws at WSU”</i> [17]
<i>Curriculum design and program development</i> [12, 14]	Recommendation 26: “The HEQC recommends that Walter Sisulu University ensure that there is capacity and that there are resources at faculty, school and departmental level in curriculum design and programme development; incorporate the insights from the evaluations as part of improvement plans to improve programme quality; and ensure that student feedback is collected and used to inform programme improvement”, p.12.	<i>To promote academic excellence in undergraduate and postgraduate studies</i> [15]	<i>5 academic programs are alleged to be unaccredited by the national accreditation body; Non alignment with the requirements of the HEQSF; The Official Response by the University Council</i> [18] <i>The media captured the crisis as, “WSU Council calls for accountability on accreditation debacle”,</i> [19] <i>WSU’s internal auditing diploma accreditation withdrawn</i> [20]

Institutional Key Performance Areas over time	Phase I (2005–2011)	Phase II (2015–2019/20)	Phase III (2020–2024)
Student Academic Development for epistemological access and success [13–15, 21]	Recommendation 20: “The HEQC recommends that Walter Sisulu University firmly implement its academic exclusions policy”, p.12.	WSU to implement the academic monitoring and support strategy for integrated academic development, as the mechanism to mitigate the potential damage to students as the result of the academic exclusion policy [22]. WSU students’ year in turmoil after they were suddenly deregistered [23]. Walter Sisulu university admits it was wrong in removing 127 students last year [24]	“A Special Senate meeting held on February 28, 2023, resolved to suspend the implementation of the G7 Rule for the 2022 Academic Year’s final performance results” [25] Registrar’s Circular of 28 February 2023, about “G7 Rule Suspended-2022 Academic Year Performance Final Results” [26]

Table 4.
 A tabular representation of the WSU phases on which the struggle of a senior manager in the agenda for excellence was socially embedded.

According to the rule G7 of WSU General Rules and Regulations [27], and in accordance with the Section 37(4) of the Higher Education Act (Act 101 of 1997) [5] as amended, students who do not perform as expected in terms of.

G7.3 – Exceed duration.

G7.1 – Not enough credits to proceed to the next level.

G1.2 – Fails the course/module twice are excluded from all academic programs or modules at WSU for a period of a year.

Although the G7 Rule cases dated back to 2009, 2011, and 2014, there was strong evidence that these cases were not managed in a responsible way. The institutional registrar’s circular of 28 February 2023 [28] announced about “A Special Senate meeting held on February 28, 2023 (which had) resolved to suspend the implementation of the G7 Rule for the 2022 academic year’s final performance results” [29]. Prior to this announcement, two media articles reported as follows about the saga of G7 Rule/management of the academic exclusion policy in 2020 and 2021 in succession,

“WSU students’ year in turmoil after they were suddenly deregistered.” [23].

“The university assumes full responsibility and offers an unqualified apology to affected students and their families. We assure you that the matter is under investigation and that consequences management will occur where necessary.” [24].

The second crisis related to unaccredited academic programs, arguable in the case where an academic program ought to be the main currency of any university institution, and as regulated by means of the program accreditation criteria (CHE, 2004), in the case of South Africa. The institutional report of 2011 constituted a third crisis event at macro level. The report had 30 recommendations and with just five commendations.

From an organizational design principle, it could, thus, be argued that the student/academic exclusions (Crisis Case 1) were more of the learning and teaching processes at operational level, accreditation of curriculum development and program

management (Crisis Case 2) at functional level, while the institutional audit report (Crisis Case 3) reflected the challenges at strategy level. The crisis events (Column 3) ensued despite the first two columns, as the recommendations of the CHE about the quality systems (Column 1). The anomaly of the crisis event about academic exclusions became more serious when students were registered for 2020 academic year only to be de-registered few months later. This was not the first case, as the HEQC recommendation 20 had resulted from the similar case in 2009. Strangely, the three crisis cases also played out in explicit ways in 2019/20, 2021/22, and as emergent during the second phase of the national institutional audits of 2021–2023 when the WSU institutional audit report was released during the final stages of preparing this article [14]. The cumulative effect of these crisis events would indicate the case of social reproductive systems, at least from the social scientist who draws from social realism (Section 3). Consequently, Phase III of the WSU Regime (2020–2024) would have to address the complexity of the systemic challenges, which should have been addressed during the previous regimes of 2015–2019, especially Phase 1 and Phase 2. In the social realist lens (Table 2), the WSU Regime of 2020–2024 inherited the conditions, which were never of their own making, as such conditions were the result of the social and socio-cultural phase of the previous regimes. The institutional values were already compromised, at least based on the three crisis events, whereby student learning seemed to constitute a disjuncture with the institution's professed (academic) *excellence*, whereby curriculum development and program management seemed not aligned to (practical) *wisdom*, and about strategic planning and implementation, which seemed to be antithetical to (institutional) *integrity*.

At the core of these observations shall, therefore, be the main claim for this article that, the struggle of a senior manager constituted the struggles of the oppressed against the intransigence of powerholders. Such struggles are dynamic and developing in the ever-continuous relationships of the human nature and the objective material conditions of time and in space. In the next sub-section, I describe how the crisis events took place against the backdrop of the struggles of the senior manager.

4.1 A developmental university which is scientific, innovative, technological, and entrepreneurial (2005–2011)

The crisis events 1, 2, and 3 in Phase III emerged from what had always been the endemic dysfunctional culture of the academic project, which was been at the coal face of the struggle terrain of the senior manager, as punctuated by the major events during the pre-administration phase. Upon the establishment of WSU, the then national Ministry of Education [28] made the following statement,

“In order to give our nation value for (higher education) investment, universities must attend to the low throughput rates at first-year level, must develop effective academic development programs (not pass one pass all), and must promote enrolment in key disciplines of science, engineering, technology, and commerce.”

About WSU, the first institutional audit post constitutional democracy had the following statement to make about the agenda for excellence as the operational terrain of the senior manager,

Commendation 2: “The HEQC commends Walter Sisulu University on the work done by the center for learning and teaching development (CLTD) in supporting both staff

and students; in improving student success; in helping staff improve their teaching, program design, and assessment skills; and providing resources to build institutional capacity to deliver on its mission”, p.9. [13].

However, this commendation about “the center” would prove to be the major hurdle as the WSU academic project seemed to be conditioned by the heavily structured and historical social and sociocultural context (**Table 3**).

4.2 An engaged University for Rural Development and Urban Renewal (2015–2019/20)

As indicated on **Table 1**, the commendation about the CLTD role had to be juxtaposed with the following two recommendations,

Recommendation 19: “The HEQC recommends that WSU develops an appropriate institution-wide strategy on teaching and learning, and assessment, to ensure the success of students, and which is consistent with the University’s aspirations to be a developmental university that has specific teaching and learning goals, and which is linked to academic and pastoral support systems,” p.12. [13].

Recommendation 4: “The HEQC recommends that Walter Sisulu University strengthen its reporting and monitoring mechanisms in all areas with special focus on student success, throughput, and graduation rates...; and ensure that the appropriate divisions take responsibility for the implementation of policies and plans,” p.11. [13].

Central to the main argument for this article are, therefore, the systemic interventions that the center for learning and teaching development (henceforth, “the center”) had to embark upon in pursuit of the academic enterprise as social justice and equity projects. Such projects must ensure that the equity of student access to university education leads to the quality of their academic success, especially for students from working-class families, who are already historically and structurally conditioned to perform poorly in the academic spaces as generally organized for a typical South African context!

4.2.1 The academic project, agenda for excellence as social justice and equity

The Centre, soon after a commendation from the CHE 2011, adopted as its Slogan, “Agenda for Excellence”. Such a slogan sought to bring to life the three main institutional values of Excellence-Wisdom-Integrity, which had to be elaborated on as the expressively veracious considerations, the structural and cultural system points as enacted by human/agency system, according to **Table 3**! For example, the Centre sought to guard against the potential complacency, whose source could be the misplaced cultural system (beliefs, values, norms, and standards), which is always dialectically related to the structural system (the roles, functions, and responsibilities). At the point of human system, the Centre had as its head a senior manager in charge of the staff complement which included specialists in the education development field.

The senior manager, who himself was the product of the fast-growing movement and the emerging field of higher education studies in South Africa post constitutional democracy, had to deal with the dilemma and paradoxes of the position by means of what is explained in the body of knowledge as middling out [15]. Buttressed between the top down and bottom up, and with the top-down weighing heavily on his

responsibilities, the art of management had to involve the ways of thinking, of doing and of making about the positions in such a manner that, while the policies and strategies could be conceptualized and coordinated effectively and efficiently as the Agenda for Excellence. Such an implementation approach should not undermine the value of the academic project and its ideal bottom-up approaches for a typical university education! It is from the bottom-up approach that the value of scholarship ought to count more than the ostensibly powerful position of the Office of the Vice Chancellor and Principal in the idea of university education. Such would be the call not just for the idea of scholarship where position and practice can be easily conflated, but also about activism when the right choices and the emancipatory projects must be for social justice and equity as the attainment of the common and public good. The Centre had been established against the historical and structural conditions which were never of own making to the senior manager and his team of professionals, but the conditions to which they had to respond by means of a concerted effort of social action and human agency. It was against such a compelling background, therefore, that the institutional strategy on academic monitoring and support for integrated academic development (henceforth, WSU AMS-IAD Strategy) was conceptualized and implemented as part of Phase II (WSU 2015–2019 Phase) and in response to Phase I (WSU 2005–2011) (Table 1).

4.2.2 *The WSU AMS-IAD strategy, the conceptualization and academic leadership at the operations level*

From its conception, the center had to grapple with the ideals of a sociocultural approach than what was already identified as the neoclassical approach about learning!! From the cultural system point (Table 3), the value of excellence had been the main feature of WSU upon her establishment in 2005. By 2015, the center had to adopt such an agenda more as an engagement process, a reflexive dialectical process, which could allow for transformative agency to emerge, than what had already appeared to be reproductive outcomes when the idea of university education as the public and the common good can be contested in power relations and in materials interests. It would have to be the center's philosophical position that the notion about excellence would have to be made explicit as scholarship of engagement [2], institution-wide. During Phase II, the “war cry” for the “agenda for excellence” was deconstructed into a mantra code-named, *Profile-Develop-Recognize*, which was made up of the following four basic elements of *Data-Information-Knowledge-Practical Wisdom*, where knowledge, as the prerequisite for wisdom, would become a contested issue along the complexity of power relations in the politics of knowledge and of Being and Becoming!

- a. The enduring institutional profiles since merger required explicit forms of engaging *data* about the quality of the curriculum, about the quality of staff competence, and about student academic performance, which could be translated into useful information about the academic enterprise.
- b. Translating such *information* by means of powerful *knowledge* would require drawing from powerful theories, which ought to be able to account for the interplays of structure, culture, and agency beyond the surface ontology and their self-referential explanations.
- c. The net result would be the struggles for the SJ-E projects as the actual and *practical wisdom* in the idea of university education for the common and public good.

Therefore, the “agenda for excellence” entailed strategy development and implementation along the *Data-Information-Knowledge-Practical Wisdom Logic*, through which the reflexive dialectical process about the right choices and emancipatory projects would have to entail social justice and equity in ways, which can allow for the transformative agency to emerge! In this way, the struggle of a senior manager and his team constituted the response to the three recommendations (Columns 1 and 2 of **Table 1**), especially against the compelling evidence about the Crisis Cases 1, 2, and 3 as already experienced from the first phase of the national institutional audits of 2005–2011 (the words, cases, and events are used interchangeable in this article).

Figure 1 reflects these four critical elements of the WSU AMS 2015–2019/20, where student learning is not only dialectically related to teaching competences (operations level) but also both emerge at the level of program management and the level of management systems (business level). In this way, the WSU strategy AMS-IAD 2015–2019/20 sought to make loud the voice for social justice and equity by being explicit about the programs and services, which would permeate the basic elements of student learning, of curriculum development and of academic staff development and, therefore, of program management.

- a. The students targeted approach involved student academic performance, which would entail tracking and monitoring in ways that binding study advice, a learning contract, would have to be enhanced by means of systemic academic advising workshops.
- b. Data from evaluation of teaching/courses would have to help in profiling the areas, where academic staff might need further empowerment and capacity building and in a staggered recognition manner (for example, Category A Lecturer, with strong evidence from a teaching portfolio, would receive more support for the teaching excellence awards, Category B would have to enter into developmental

SYNOPSIS: THE ACADEMIC MONITORING AND SUPPORT (AMS)

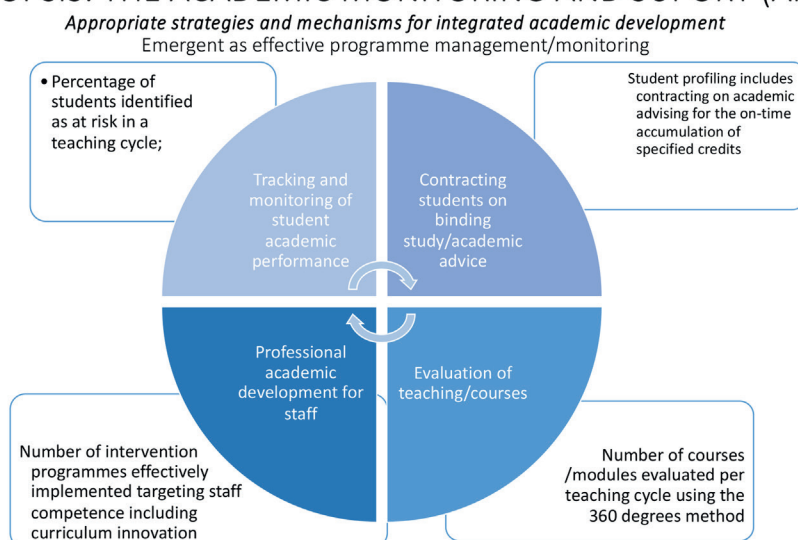


Figure 1. The critical elements of the institutional strategy on academic monitoring and support for integrated academic development emerge at the level of leadership and management roles, created by the author.

program with the heads of department for further areas of support, while the case of Category C would invite more evaluations from peers, students, etc.).

4.2.3 The WSU AMS-IAD strategy at the academic leadership and management systems level

The WSU AMS-IAD Strategy 2015–2019/20 was planned with the sole purpose for the promotion and monitoring of student academic success in various stages of the institutional value chain (from student entry to exit levels), while, in between, the integrated academic development would have to allow for horizontal articulation (breadth, at the point of structural system) (**Table 3**), and vertical articulation (depth, at the point of cultural system) (**Table 2**) and over time. At management systems level, the strategy sought to allow for the alternative ways of promoting and monitoring for epistemological access in systemic ways: While the strategy was conceptualized to empower academic leadership on how to engage excellence as part of their portfolios,

- a. the required structural systems would have to address the potential disconnect,
- b. the potential faculty consciousness thereof would have to allow for elaboration along the cultural system, and
- c. in ways that the human system had to be ideally more transformative!

Such were the institutionalized efforts for the equity of access and the quality of success where the key performance areas about integrated academic development constituted the means to an end. The assumption in terms of the agency thereof would be that other colleagues at management level would be able to bring to life these efforts for an approved institutional strategy and toward what should be a “network of outcomes”.

The case of examinations analysis and the G7 Rule/academic exclusions during the academic year 2014/15 meant regular engagements with the office of the Deputy Vice-Chancellor Academic Affairs and Research (DVC AAR), to whom the senior manager reported per line function. As the result, the following extract from the senate resolution of April 2015 [30] would be quite instructive.

“Each and every current class ...to report interim performance in terms of continuous assessment at each senate so that classes that are at risk can receive the attention of senate and the necessary support. All academics that are currently in class therefore should submit their current class performance in terms of tests, term papers, or any other relevant performance indicator.”

The senate resolution would later be elaborated on in the institutional risk register of February 2016 [29], with the following instructive statement.

“HoDs to effectively monitor students at risk, reporting to the deans on quarterly basis.”

Ideally, and as emergent at institutional level, would be the responsibility and functions of both the management systems and governance structures. It would be the elaboration of the Senate Resolution [30] and the risk identification and management, where in the Heads of Departments (HoDs), Deans of Faculties, Campus

Rectors, and the Office of DVC AAR in providing the monitoring and oversight roles, functions, and responsibilities as already well documented and outlined in the WSU AMS-IAD Strategy 2015–2019/20 [23].

Therefore, IAD needed to be understood and applied as representing the complexity of the academic project, which is multilayered and where the actual measure is about the notion of quality as not only about emergence, in realist terms (**Table 2**) but takes place over time (morphogenesis/morphostasis, **Table 3**). While the programs and services are reflected as discrete and fragmented (**Table 4**), the actual organizing principle was the equity of student access for the quality of success as the developmental imperative, a social justice and equity project, but in more about the open and complex social ways than the deterministic ways.

However, these activities, while necessary, their adequacy would be a subject of explanatory critique. Some level of caution would be required for these activities not to be just representations of how teaching/courses can be measured in ways that can be better managed. The actual work would have to be beyond the reductionist and technicist ways of doing, as what ought to be teaching/course delivery should be more about the value of what is being measured, than the measurement itself. The principled position about integrated academic development is not for the discrete support systems about students, staff, and curriculum, which would be a deficit model, but about the integrated approach, when the focus is on the quality as knowledge, based on the performance data and information, and how that knowledge can be recontextualized as varieties of a curriculum in ways, which can be context-specific and actor-driven.

At this point of the article, the discussion then takes more of the methodology aspects about critical realist analysis about the three crisis cases as the disjuncture of the WSU AMS-IAD Strategy 2015–2019/20 especially at the points of cultural and human systems. This has to do with the further elaboration of a scholarship project within the Theory-Methodology-Practical Program chain.

5. A critical realist analysis about the three crisis events as misrepresentations of social justice and equity

The crisis events 1, 2, and 3 (**Table 4**) indicates what can be argued as the intransigence of powerholders, when the academic choices, and the management projects they embark upon, can be incongruous with the ideal of social justice and equity in the idea of university education as the public good. Such choices and projects can inadvertently and unwittingly promote historical and structural disadvantage. This section of the article seeks to illustrate how such choices and projects can play out as emergent in terms of the systemic levels of academic leadership, management system systems, and governance structures over time. In such a critical realist analytical approach, the social scientist/researcher is interested in what might be the synchronous and diachronous structural mechanisms that can generate such events, which reinforce more of the positions of the powerholders than the actual truth and the emancipatory projects for the oppressed. The struggle of senior managers, in such contexts, goes beyond the design and coordination of the strategy, but the ability to describe such events and before they can be explained as a practical program (where the logical point is about both activism and scholarship by ensuring the alignment between theory, methodology and practical program.)

Therefore, the analysis in this section seeks to introduce the critical realist tools of transfactuality as a form of retroductive reasoning and for a transcendental argument. Drawing from the critical realist perspective (Section 3) helps to understand

how the synchronous and diachronous structural mechanisms were quite enduring in 2019/20; 2021/22; 2022/23 despite the earlier recommendations of the national institutional audits of 2011. Having the three crisis cases juxtaposed with each other and against the prescripts of the WSU AMS-IAD Strategy 2015–2019/20 surfaced the dissonances of one fact against the other. “Absenting” in the three crisis cases surfaced the contradictions and inconsistencies of Being and Becoming (**Table 1**) about the institutional values of excellence, wisdom, and integrity. Such a morphogenetic methodology allows for identifying what could have been the practical alternatives (transformative outcomes in the morphogenetic state) as against the compelling evidence in the form of the reproductive outcomes, the morphostasis state about the cases under review. Absenting tactics in each case would entail what must have been the real cases as inferred from the situation under the critical realist examination (domain of the real, **Table 2**).

In a nutshell, the reproductive outcomes (the morphostasis state in 2019/20, in 2021/22, and in 2022/23) all stemmed from what can be the blind pursuit of meritocracy when the notions of quality can masquerade as the “Pursuit of *Excellence*,” as the inadequacies about *wisdom*, and as the undermining of *integrity*. Therefore, making inferences, through a comparison of one fact against another, and by means of retroductive reasoning, becomes a powerful way of advancing a transcendental argument about how the struggle of the oppressed against the intransigence of the powerholders is about emergence and over time. But what kind of questions could be driving such a scholarly approach?

5.1 Toward the transcendental argument about the silences and superficialities in “pursuit of excellence”

The main question, according to **Table 4** is that the crisis events of 2019/20, 2021/22, and of 2022/23, as mapped out in the last column, is whether such events constituted the unintended consequences about the management of the academic enterprise (the HEQC Recommendations 19 and 20 about WSU as outlined in Column 1). The preliminary finding about the table, at least at face value, is about the contradictions and inconsistencies of the academic project as fractured in systemic levels. In reading the data initially (**Tables 2 and 3**), I was working at the levels of the empirical (reported in the media as the crisis) as observations and experiences, and then the level of the actual (organizational records) in that I was identifying events and processes about the crisis events as mis/representations of social justice and equity. In critical realist terms, the analysis took the examination of the interplays between the mechanisms of structure, culture, and agency, and whether there seemed to be some constraints and enablers confronted some groups of respondents more than others. Having done this, I was able to move to abstractions at the level of the real to identify the mechanisms, which could constitute the interplays with each other across the entire spectrum of the HEQC Recommendations of 2011 [13] over time resulting in crisis events of Phase III as confirmed in the HEQC Institutional Audit Report of 2023 [14].

Therefore, the following three questions arise, which make for a transcendental argument,

What the reality must have been like for the events/the crisis points, and the processes/ phases to take place the way they did? What mechanisms must have been generating the kinds of the events and processes as those that are manifest at the domain of the actual and how the latter is further reflected as the empirical data?

Therefore, the analysis thus far seems to indicate the following two main findings:

- a. The state of morphostasis about social justice and equity in the idea of university education as the common and the public good. There seems to be more of the continuities than the discontinuities from the old regimes of power and of truth, where the WSU AMS-IAD Strategy was not adequately engaged, at least for those who were on the negative ends of the three crisis events.
- b. Emergence: The social world is open and complex, thus indicating the value of understanding and explaining emergence in the complexity of power relations in the politics of knowledge and of being and of becoming!

The cited cases were quite illustrative about what turned out to be more of the continuities than what ought to have been the discontinuities from the old regimes of power and of truth. This was the case of what I argue about elsewhere [2] as the complexity of power relations in the politics of knowledge and of Being and Becoming! In such cases, the Idea of Being needs to focus on the possible simplification, namely,

- How the pattern of events raises the dissonance and discrepancies about the cases when compared to what ought to have been the AMS-IAD? How of the crisis 1 could be measured against integrated academic development over time?
- How of the case 1 emerges at MS about curriculum development and program management, and further at GS about the institutional strategies in the case of AMS-IAD?
- Drawing from the Fraser model, how of the three crises reflected the deeply embedded socioeconomic inequalities, which can play out in the academic spaces?

The research value for such an exercise, as scholarship, would entail promotion of the transformative outcomes as a cultural system about SJ-E. Specifically, it would be about the value of emergence of, from the discrete functions as academically led, to management systems and as regulated by the governance structures, for the requisite institutional culture of excellence.

5.2 How the incongruity about three crisis cases must have been the result of sociocultural conditioning?

The cases seemed to be indicating in profound ways the inaction of those who should have acted, the indifference of the professorate when it should have known better, and the silence of the voice for social justice and equity when it should have been loud. For WSU, such was the travesty of justice when in consideration of Excellence-Wisdom-Integrity as espoused institutional values.

Table 5 indicated more of the state of morphostasis as more of the reproductive outcomes (Column 1 and 2) than what could have been the ideal of the transformative outcomes, the morphogenetic state. The management of learning, teaching, and assessment systems, as the enabling mechanisms for the idea of university education as the public and common good, seems to be reproductive of the social injustice and iniquities, and at least ameliorative, instead of being transformative. The inadequate roles, functions, and responsibilities of academic managers, as actors in the system, as

Dimension	Social Injustice (Reproductive Outcomes)	Affirmative response: addresses injustices with ameliorative reforms	Transformative response: addresses the root causes of inequality
Political	Misrepresentation Forms of academic leadership fall short of elaborating on excellence in context-specific and actor-driven ways This political dimension, of which academic leadership is mutually inclusive, ought to be constitutive of the structural system for social justice and equity	Representation, of social being The WSU AMS-IAD Strategy attempts to address this, but the Strategy does not go far enough if not fully enacted by agency (management systems and governance structures as a just, fair, democratic and empathetic positions)	Reframing, of parity and rights Only when the WSU AMS-IAD Strategy is fully enacted that parity and rights can constitute social justice and equity as a responsive and relevant curriculum by staff and for students
Economic	Maldistribution, of resources The shortfalls in the academic leadership as the political dimension also have the economic dimensions as dialectically related	Redistribution, of resources, Integrated academic development is available for engagement in ways that mediation on student learning challenges can be effectively implemented for the idea of university education as the public good	Restructuring, of economic model The adequate engagement both of the processes (inputs, process, outputs) as professional academic development of staff assure not only program accreditation but also student retention and success
Cultural	Misrecognition: Academic leadership, which ought to promote social justice and equity, is constrained in student-centered learning and in the required decoloniality discourses, based on the required value systems, that is, on social justice and equity discourses.	Recognition, valued, respected, esteemed Integrated academic development provides what could be the alternative and powerful ways of ensuring epistemological access, but only if such tools can be engaged by agency.	Re-acculturation plurality of perspectives, but always fallible Both the WSU AMS-IAD Strategy allows more for universal plurality (human flourishing) than what could be the cases of concrete singular (when university education can be limited by the class and power lines)

Table 5.
The WSU AMS-IAD strategy 2015–2019/20 in the lens of Nancy Fraser’s social justice and equity model.

agency, do not seem to go far enough in enacting both the AMS-IAD strategy, hence the enduring crisis events as indicative of how self-productive the historical and structural disadvantage can be.

6. The social realist account: from the transformational but back to the reproductive outcomes

In this section, I discuss how the silences about the three crisis cases were incongruous with the institutional values of Excellence-Wisdom-Integrity in open and dynamic ways when the crisis cases evidenced the serious shortfalls as the inaction of those who should have acted, the indifference of the professorate when it should have known

better, and the silence of the voice for social justice and equity when it should have been loud. I, therefore, demonstrate how I draw on the critical realist tools of retroductive reasoning in order to explain, as a transcendental argument, for what must have generated the crisis events in the academic project and per the case study where the actors seemed to be struggling to engage the WSU AMS-IAD strategy goals and objectives, and, in the processes, allowing more of the reproductive (the state of morphostasis) than what would have been the transformative (morphogenesis) outcomes in learning, teaching, and assessment as the core functions of university education.

I build my claims on the social realist explanation (retroductive reasoning for a transcendental argument), in four ways (elaboration on **Table 3** about the methodology of morphogenesis)

- a. How the reproductive outcomes and the state of morphostasis in 2019/20, 2021/22, and 2022/23 constituted the social and sociocultural interactions, the T2-T3 points (**Table 3**),
- b. How the idea state of morphogenesis could have been about drawing from the powerful knowledge about each case in ways that could have been transgressive of the structural and cultural norms, the T4 point, which was quite enduring from the previous Regimes, the T1 point.
- c. How it ought to have been so for a university education, which has its institutional values as Excellence-Wisdom-Integrity, the ideal of transformative outcomes at the T4 point
- d. How that it was not the case, and per the latest institutional audit report of 2023 when the findings derived from the synchronous and diachronous structural mechanisms, which make for the systems of domination and control, and further as the dominant explanations about quality!

6.1 The social and sociocultural interactions, the T2-T3 points

One of the positions that makes social realism to be a powerful explanatory program (**Table 3**) is its ability to apply its tools about rationality. One of those, relevant for the discussion, is transfactuality, that is, the ability to engage the assumption that, because the numbers are, or the statement is, it thus serves as a measure of reality. Transfactuality allows for abductive logic as questioning the taken-for-granted views about what appears as empirical because the observations and opinions at the domain of the empirical are the result of other two emergent layers (domain of the actual, and the domain of the real) in nondeterministic and in irreducible ways. Therefore, this description of what the ontological assumptions can be about SJ-E projects seek to foreground the role of agency (human system as choice or non-choices, as actions of no actions), which operate in dynamic relationships with the social and cultural systems, as indicated on the diagram.

According to Archer's morphogenetic approach [11] (**Table 3**), the current challenges about the SJ-E theories and practices, per already cited cases of academic exclusions, program accreditation, and the institutional audit, which was quite scathing about the academic project, would constitute the T 1 point, the inherited context of disadvantage, the previous T 4 point.

- a. The structural system about social justice and equity takes the role, duties, and responsibilities in terms of policies and strategies, which might be conditioned in such a context.
- b. The cultural system about the policies and strategies thereof refers to the beliefs, values, and propositions as forms of knowledge and about how such knowledge is legitimated.
- c. In such systems relationships, the human system, as agency, interacts both with the structure and agency albeit at the micro level.

Such dynamics of the open and complex social world call for the realist understanding of SJ-E as the condition of historical and social relations which, depending on the quality of agency, might result in either reproductive or transformative outcomes or the variations of both. [2] draws on the same theoretical lens to explain the workings (T2-T3) of the idea of university education as the public good as deep ontology, stratification, causally efficaciousness, and emergence. In the case of the three crisis events as analyzed above, the T2-T3 cycles took the following iterative processes, which unfortunately resulted more in the reproductive than the idea of the transformative outcomes,

- a. Despite the recommendations, from the institutional audit report of 2011, that the academic exclusion policy must be implemented (with the supportive teaching and learning strategy), by 2023, such the implementation approach had had disastrous consequences with the unintended result of the academic board “abandoning the policy” altogether!
- b. Despite the case of five academic programs unaccredited by 2021/22, when they should have been, one out of these five remained unaccredited even after the systemic interventions about such a crisis event.
- c. The institutional audit report of 2023 would, thus, constitute the third crisis event, and yet another case of reproductive outcomes.

According to Archer’s methodology of morphogenesis/morphostasis (**Table 3**) the actors in social systems do not just inherit the social and sociocultural conditions (T1), which are never of their own making. Their social action and human agency take the form of the iterative cycles of T2-T3, through which the nature of social and sociocultural interactions (the interplays of structure and culture as enacted by human action) for either the reproductive/morphostasis or transformative/morphogenesis states to take place, which is thus T4.

6.1.1 The academic leadership and excellence, the inaction of those who should have acted

The irresponsible management of the academic exclusion policy, whose source was the G7 Rule as regulated [5], meant that social disadvantage, exclusion, and marginalization could be enacted by the inaction of those who should have accordingly acted. At least 100 students per the cited cases were unfairly deregistered from the education system, the act which the powers that be from institutional management, had

to apologize for much later! For such students, and at least per the cases which call within the radar of this project, the redistribution of the resources which the university ought to provide, could not be realized, and thus defeating the basic principles and foundations of the South African Constitution which is founded on the Basic Human Rights, the access and success principles of the transformation of university education, and let alone undermining the very institutional value on academic excellence as espoused at WSU. It is extremely unfortunate that the culprits in such acts could not engage the resources in their disposal as in the WSU AMS-IAD Strategy and its bouquet of integrated academic development programs and services.

The University Registrar's Circular of 28 February 2023 [26], about "G7 Rule Suspended-2022 Academic Year Performance Final Results" surfaces very controversial issues about how the resolution of the "special senate" [25], which took place on the same day, must have arrived at the decision. The content analysis of this circular against the senate management report reveals other anomalies about how the case could have been handled against what ought to be good practices of corporate governance and leadership.

Item 5.1: Review the implementation of the G7 Rule: "The meeting took notice of a verbal report from the DVC: AAR emanating from the meeting that was held on 23 February 2023 with student leadership concerning the implementation of Rule G7 for 2022 academic year" ([25], page 4 of 4).

The timing of the senate decision about the management of the G7 Rule seemed to be quite questionable. G7 Rule ought to be implemented from the beginning of the academic year, right during student registration. Also, the submission about the case in the form of "a verbal report," seemingly indicated an absence of a written management report to be submitted at this level of the governance structure. An educated guess from these activities (making inferences for a transcendental argument) is that there seemed to be pressure from students who were intent on registration by forcing the powers that be to bend the institutional rules, of which they ought to be custodians! All these activities seemed to sit against what ought to be good practices for the systems and processes, which need to follow good knowledge management system for audit trails, and for a university context, which is supposed to embrace institutional research as a form of scholarship. Worse still, the activities, as documented both in the circular and the senate report [25] and the registrar's circular [26], were inconsistent with the prescripts of the WSU AMS-IAD Strategy, which take care of the more developmental way of attending to student academic challenges before such students reach the "academic exclusion points."

Therefore, the discussion, thus, far, makes up for the case of *a structural system* when the roles, duties, and responsibilities of the affected heads of departments, deans of faculties, office of the registrar, the office of the campus rector, and the office of DVC. AAR, including all senators present at the meeting [25], is seemingly not the proxy for the actual equity of student access for the quality of academic success. The management of this crisis case reflected the inaction of those who should have acted for a university that is ostensibly in "Pursuit of Excellence" [16].

While university education is naturally designed for the middle- and high-income families, the AMS-IAD Strategy was designed to restructure such a model in ways that education as the public good could be common and be accessible to all [3]. The case about the academic exclusion indicated that it cannot always be the case! The actors in this case apparently drew on their neoclassical approach about student learning, with

its deficit model, to perpetrate historical and structural disadvantage advertently and unwittingly instead of embracing the sociocultural approach as advanced and promoted by means of the AMS-IAD Strategy [22]. In the 2019/20 case about the management of the academic exclusion policy, the following statement by the affected student was quite indicative of how the no access to the public and common good that the university has to offer, can have disastrous consequences when in consideration of what should have been the redistributive value,

“Next year NSFAS will need our 2020 academic records, and we will have nothing to show. How will we secure funding to further our studies?” [24].

The strange turn of the events from this case was when the university management had to make a public apology for their mishaps [24].

6.1.2 The management systems and practical wisdom, the indifference of the professoriate when it should have known better

At the *cultural systems level*, as the apparent misrecognition of the plight of students in the lens of the social justice and equity, the idea of university education as the public good was not a values-free exercise for students who were on the negative ends of such acts of academic exclusion. The case of the unaccredited advanced diploma in internal auditing, for example, indicated how the inactions on academic excellence can emerge at the point of the indifference of the professorate when it should have known better. Not only 100 students were academic excluded unfairly in Crisis Case 1, but under Crisis Case 2, a total of 125 students were affected by such forms of apathy when WSU had to discontinue admitting students when it could have been the case. Such forms of apathy are antithetical to the ideal of (practical) *wisdom* as an institutional value. More than once, the institution was given an opportunity to correct this, as dating back to the advent of the higher education qualifications sub-framework, and as consequently outlined both in the WSU AMS-IAD Strategy [22].

An academic program ought to be the currency of any university education. The fact that the program could be discontinued due to the accreditation issues talked quite extensively to the challenges of apathy when empathy about students that WSU is able to admit in her programs should have weighed heavily on the part of the professorate, as the powerholders in this case. It was quite a sad turn of events that the case could reflect the case of the professorate who seemed to miss the reality that the concrete singular must be the enabling mechanism for universal plurality. It also defeats the realist-oriented logic that the Data-Information-Knowledge-Practical Wisdom chain could not apply quite adequately in the case of the advanced diploma in internal auditing. Data about academic excellence ought to constitute the well-embedded management information systems, which, when deconstructed from a powerful knowledge perspective, should lead to the practical wisdom in the idea of university education, in “Pursuit of Excellence.” It is by drawing on the powerful knowledge, at least per the WSU AMS-IAD Strategy, that the re-acculturation of plurality of perspectives could have been possible, at least at the point of scholarship of engagement, as I argue elsewhere [2] about such realms of new possibilities. Curriculum development and program management constituted the roles, functions, and responsibilities of the actors [25] who were ostensibly members of the professorate in an ideal university education context! While a university can register students who are underprepared to do well in a typically middle- and top-class university

environment, for the South African transformation project, it is also incumbent upon the university to design the readiness systems and processes for such students, hence the WSU AMS-IAD Strategy was designed for that purpose as the battery of programs and services! The case of an advanced diploma in internal auditing meant that these enabling mechanisms for curriculum development and program management could not be adequately engaged, and hence the unaccredited status. If Crisis Case 1 was more about the silences and superficialities of academic leadership when in pursuit of excellence, Crisis Case 2 about the management systems level already pointed to what can be the challenges at governance structure level. That turned out to be the case about the Crisis Event, which would be quite instructive about the notion of emergence and morphostasis at strategy level. That is ideally the case about the governance structures, which must be the “driving force” for a university education as the embodiment of social justice and equity.

6.1.3 The governance structure and integrity, the silence of social justice when it should have been loud

The unintended consequences of both the structural and cultural systems played out in the 3rd dimension, the dimension of human systems as the actors on the roles, functions, and responsibilities and further on the beliefs, norms, and standards in the idea of university education as the public good. Such an idea ought to take the reframing of parity and rights for the indigent, especially in the case of a university institution, which serves most of the community that is still steeped in the historical and structural disadvantage. The intransigence of the powerholders, as emergent at the operations and management levels, becomes more pronounced at strategy level when the systems and processes can be in place both the inaction and the indifference can emerge as the silence of the voice for social justice and equity when it could have been loud. A critique about inaction and apathy at the institutional level is about a university, which might still be locked up in the neoclassical approach about the idea of a university as the ivory tower status secluded from the community the varsity serves! Great pity that the governance structures, as constitutive of the actors in Crisis Cases 1 and 2, could still be displaying the shortfall of what ought to have been the sociocultural approach as provided in the WSU AMS-IAD Strategy [22]. The institutional audit report of 2023 [14] provides compelling evidence for how Crisis Case 3 played out in the form of the silences and superficialities of integrated quality management systems, which could not go far enough in terms of coherence, functionality, responsiveness and meaningfully structured, where the management, leadership and governance systems ought to be the main actors.

6.2 Engaging the dis/continuities from the old regimes of power and of truth

The Crisis Cases 1, 2, and 3, especially as evidenced by the institutional audit report of 2023, paint what seem to be the major constraints in the struggle of a senior manager when in pursuit of social justice and equity as the “agenda for excellence.” Such actors as implied in the report have the temerity to draw on the dominant explanations of quality as if quality is not contested in power relations and in the materialist interests favorable to them. It is not rocketing science that such audacity has its source as the systems of domination and control about student learning, about curriculum development and program management, which, at Institutional level, can lead to the recurring of very negative institutional audit reports [13, 14], and thus defeating the

whole logic about the idea of university education as the silences in the idea voice for social justice and equity! It is quite instructive about such cases that the two institutional audit reports took place with a decade in between (2011 to 2023). In such cases, as [31] would raise a rhetorical question, would be whether the “subaltern can speak”? I would, thus, provide a rejoinder: If so, in whose language, anyway? Which rules of engagement would apply in such dialogs and conversations as the requisite forms of scholarship of engagement and in context-specific and actor-driven ways [2]?

Therefore, it is this point about engaging the systems of domination and control, about the dominant explanations about quality, which constituted the struggle of a senior manager at WSU. Such struggles are not unique, they constitute the struggles of the oppressed and their beneficiaries, against the intransigence of the powerholders! They are struggles, which are constitutive of the dynamic and developing relationships between the human nature and the objective materials conditions of life in time and in diversity of spaces! Such struggles make for the ethico-political and moral choices and projects for the advancement of human flourishing. Such are the struggles against brutality, against dehumanizing tendencies, and against how patronizing and condescending the attitudes can be in the social world!

As illustrated in this article, such are the struggles against the inaction of those who should have acted, against the indifference of those who should have known better, and the fight for making loud the voice for social justice when it can be so silent! Such social ills, the forms of social injustice and iniquities as the misrepresentation of the other when reframing of their parity and rights could have worked better, as the maldistribution of resources about the other when the alternative could have been the restructuring of the economic model, and as the misrecognition of the other when the right choices and emancipatory projects for the other could have been the re-acculturation of plurality in advancement of human flourishing, need to be ameliorated and at best be abolished!

Therefore, the discussion in this article has revealed the frivolity of the blind claims about quality when in consideration of how some critical cases of an academic enterprise might be incongruous with the espoused institutional values of Excellence-Wisdom-Integrity. Cumulatively, the findings of the institutional audit report [14] point to the crisis events as the enduring events and processes over time [13], and most significantly as the result of questionable foundations about WSU merger, [3, 4], a university that is still grappling to find her identity. The crisis events of 2019/20, 2021/22, and 2022/23 indicate how the management of the academic project in “Pursuit of Excellence” can get lost at the point of academic leadership as the question of interplays of structural, cultural, and human systems! The case of G7 Rule/Academic Exclusion crisis of 2019/20, which led to the “postponement of the policy” for 2022, albeit in 2023 [25, 26], for example, constitutes not only the T4 point of the reproductive outcomes about excellence but the potential T1 point if such an event is engaged progressively and in socially reconstructive ways. This is the critical point about emergence to the social science scholars who draw on the power of critical realist philosophy (Table 2, Section 3).

The idea about university education as the embodiment of *excellence* ought to be mutually constitutive with *wisdom* and *integrity*, with all the three as important dimensions of power political relations and economic interests as embedded in cultural systems. For a university education system, such a responsibility falls squarely on the shoulders of the professorate, which, per the three crisis cases, the assumed actors in the “Pursuit of Excellence,” unfortunately remained indifferent. In contexts of historical and structural disadvantage, exclusion, and marginalization, academic leadership ought to entail a particular focus on the identity as the veracious and expressively

consideration, that is, on the right choices and the emancipatory project for the historically and structurally disadvantaged, excluded, and marginalized. The three crisis cases indicate the serious absences in all the three accounts of academic exclusions of program accreditations, and of institutional audits, at least from the point of those who were on the negative ends of such forms of indifference and apathy. However, it is important to note that, in a dynamic and developing relationship between human nature and the objective material conditions, this T4 point is also a T1 point for the next cycle, which therefore presents more of the opportunities than the challenges to the current WSU Regime of 2020–2024 [16] as it embarks on the institutional projects for the iterative elaboration about a university in “Pursuit of Excellence” for Vision 2030.

7. Toward the practical alternatives for transformative agency

The next logical point in the theory-methodology-practical program chain, should entail the potential resolution points about the three Crisis Cases, which punctuated the struggle of a senior manager for SJ-E projects. As it has been the running thread in this article, such cases signified the struggles of the oppressed against the intransigence of the powerholders! According to the discussion thus far, such Crisis Cases call for what could have been the action versus inaction, the empathy of the professorate instead of the indifference, and the voice of social justice and equity when it was so glaringly silent. A cautionary note, though, is not to consider these points as binaries, as disabling dualisms, since the edges within them can always be blurred in open and complex social systems! Therefore, in this Section, I focus on the case of curriculum development and program management to illustrate the value of human system as in interaction with the structural and cultural systems. I argue that the transformative outcomes about the case of the unaccredited program of advanced diploma in internal auditing, while conditioned in its history and social relations about its management, reconstituting it should have called upon social action and human agency. The reflexive dialectical processes thereof, which included even calling upon external consultants, could not go far enough in ensuring that corporate agency can emerge for the idea of transformative outcomes as re-acculturating universal plurality from the concrete singular. In the previous section, I briefly touched on this point as the value of the data-information-knowledge-practical wisdom chain. This could have been the case of how of the re-curriculation of the program at the point of knowledge should have been built on extensive data and on easily accessible information and in ways that could have led to the practical wisdom, and thus emergence at management, leadership, and governance systems levels as morphogenesis. Applying such logical approach in more context-specific and actor-driven ways could have solved both other two cases of academic exclusions and the negative institutional audit report at the three points of action instead of inaction, of empathy instead of indifference, and of making loud the voice for social justice and equity, and thus go a long way in ensuring a flawless institutional audit report as the new WSU Regimen of 2020–2024 is busy rolling for WSU Vision 2030 [16].

7.1 Transformative agency, the dream deferred?

Summarily, transformative Agency in corporate ways ought to entail a broad-based movement of critical minds in university education, and thereby taking a stand together for the sake of the scholarship and its future. This point is very instructive for the

current WSU Regime of 2020–2024 whose vision is about “an impactful and technology-infused African university,” a university “In Pursuit of Excellence!” I personally take the view that the current vision is more about the enabling mechanisms, where the outcome remains for the idea of “an engaged university for rural development and urban renewal (2015–2019/20).” Otherwise, what would be the idea of university education for in the context of Walter Sisulu University? For me, the new vision statement does not go far enough in promising radical conceptual shifts about what WSU could have been in 2015–2019, but is a travesty of justice, and indictment on the part of those who ought to have been the actors of the previous regime, as the crisis events of 2019/20, of 2021/22 and of 2022/23 seemed to be so instructive. As it were, the three crisis cases as the subject of inquiry in this article might be the workings of pretense, grand standing, and political posturing so typical of the powerholders. Such is in the nature of the struggles of the oppressed against the intransigence of the powerholders as a dynamic relationship between the human nature and the objective material conditions.

The struggle of a senior manager constituted my personal reflections of managing and leading the dynamics in the case of the center and the approved but inadequately enacted, WSU AMS-IAD Strategy 2015–2019/20 due to the inaction of those who should have acted, the indifference of the professorate when it should have known better and most significantly, the silence of the voice for social justice and equity when such voices could have been much louder. It is about human nature, especially drawing from social reality theories, that people will always inherit the circumstances, which are never of their own making, when the efforts for university education transformation can easily yield more of the reproductive than the ideal of transformative outcomes. However, it is from the conditions of their time and space that they can call for what might be the right choices and emancipatory projects, through human and social action as the reflexive dialectical processes can allow for transformative agency to emerge. The events and process about the pursuit for social justice and equity in such circumstances of inheritance, and their conditions of choices and projects, might have to be self-incriminating and thus defeatist if they cannot be theorized and thus conceptualized by means of contemporary scholarship endeavors. Nevertheless, the struggles of a senior manager in such contexts, and drawing from the statement by Mr. Thabo Mbheki, former President of South Africa [1], a social scientist and researcher in the pursuit of social justice and equity for human flourishing might have to go to “the gallows singing, in order to indicate (the) determination for the other people who may come”.

Therefore, to possible transform the system in such institutions, as the WSU context and their expressively veracious considerations, need to understand the transformation project in context-specific, in concept-dependent, and in actor-driven ways. A university in “Pursuit of Excellence” can not afford to be seen as playing to the gallery, as waxing lyrical when it comes to the forms of injustice, of unfairness, of authoritarianism, and of indifference as experienced by the academically excluded students in the Crisis Case 1 and 2. By contrast, ‘the social struggles of the oppressed and exploited against such structures and their beneficiaries (the systems of domination and control, their cultural systems of dominant exploitations about the social phenomenon) are morally right’; they are ‘objectively, ethico-political ‘right-action.’

8. The reflections, integration, and conclusions

This article reported on the struggles of a senior manager by mapping out social justice and equity (SJ-E) projects in one case of a university education

institution over three phases of her transformation project. The advent of the national institutional audit (2021–2024), the second one post-constitutional democracy, allowed for the potential analysis about the value of understanding the role of agency in the theory and practice of SJ-E projects for the idea of university education as the public and the common good. The struggle of a senior manager was about the struggles on behalf of the oppressed against the intransigence of the powerholders, who inadvertently and unwittingly chose and embarked upon projects that could make perpetual the historical and structural disadvantage! It was the struggle/a process whose product would become tested at the point of the crisis events, thus raising a question about what can always be the structural generative mechanisms for the enduring social ills.

The events and processes about the idea of an engaged university for rural development and urban renewal itself could have passed the test in terms of concept. However, and most significantly, such a test could be rendered unworkable at the point of the theory-practice nexus, of the cultural system and how such systems can be enacted, as discussed in this article. Not the least of such a possibility was the value of scholarship of engagement, which constituted the main claims in this article, about the three events which were emergent and quite enduring over time. The events permeated the first institutional audit report of 2011 to the current, per the recently released institutional audit report of April 2023. The institutional plan 2020–2024, while necessary and significant, the inadequacies thereof are likely to be surfaced at the points of the transformation project which is likely to assume a very challenged character against the assumed trajectories and let alone the dynamics thereof! The critical success factor for the plan will be the quality of leadership for the character of the WSU transformation project for what are the assumed trajectories and let alone the dynamics of the open and complex social systems! If the plan does not stem the tide about the cases of social injustice and iniquities as discussed in this article, a prediction can be made, on the strength of, on the balance of probabilities beyond the reasonable doubt, that the major crisis events of 2012–2013 are likely to set in at WSU, and thus subjecting this institution to an unfortunate era of the Administration Regime as it happened in 2011! That is not a far-fetched reality given the fact that WSU still belongs to the category of historically disadvantaged institutions in South Africa who had to undergo the administration for the second time post-constitutional democracy. Such would be the case of a never-ending struggle, given some of the unresolved issues in the three crisis events, namely the postponed implementation of the G7/Academic Exclusion Policy institution wide, the still unaccredited academic program in the case of Advanced Diploma in Internal Auditing, and the still pending improvement plans for the recently released institutional audit report of April 2023. In the light of the latter cases, such struggles of the oppressed remain a forever developing and evolving dynamic relationship between the human nature and the objective conditions in the pursuit of excellence, in the idea of university education as the common and the public good!

Declaration


This chapter is a dedication to all the educational development activists and scholars who are in the coal face of the struggles of the oppressed against the intransigence of powerholders. Such struggles are emergent from personal to institutional spaces, from the national and global spaces and over time!

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COVID wrought havoc on the world's economic systems. Higher education did not escape the ravages brought on by the pandemic as institutions of higher education around the world faced major upheavals in their educational delivery systems. Some institutions were prepared for the required transition to online learning. Most were not. Whether prepared or not, educators rose to the challenge. The innovativeness of educators met the challenges as digital learning replaced the face-to-face environment. In fact, some of the distance models proved so engaging that many students no longer desire a return to the face-to-face model. As with all transitions, some things were lost while others were gained. This book examines practice in the field as institutions struggled to face the worst global pandemic in the last century. The book is organized into four sections on "The Perspectives of Higher Education", "COVID as a Catalyst for Change", "Embracing Online Learning as a Response to COVID", and "Post Covid: The Way Forward". It presents various perspectives from educators around the world to illustrate the struggles and triumphs of those facing new challenges and implementing new ideas to empower the educational process. These discussions shed light on the impact of the pandemic and the future of higher education post-COVID. Higher education has been forever changed, and higher education as it once was may never return. While many questions arise, the achievements in meeting and overcoming the pandemic illustrate the creativity and innovativeness of educators around the world who inspired future generations of learners to reach new heights of accomplishment even in the face of the pandemic.

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