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Higher Education
Reflections From the Field - Volume 4

Edited by Lee Waller and Sharon Kay Waller

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and Sharon Kay Waller*

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IntechOpen Book Series

Education and Human Development

Volume 6

Aims and Scope of the Series

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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Contents

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: "Embracing Quality Assurance", "Educational Standards and Quality Assurance", "Evaluating Educational Access" and "Why Assessment?". 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

Embracing Quality Assurance

Perspective Chapter: Performance-Based Assessment through Inquiry-Based Learning

Aysha AlShamsi

Abstract

Due to the COVID-19 pandemic, students were suddenly required to complete their assessments online. Higher education (HE) institutions and instructors likewise were suddenly forced to ensure competency achievement among students online. At many (HE) institutions, competency-based learning is mandatory. Approaching online assessment through online competency-based performance assessment is crucial to achieving institutions' expectations. Online competency-based performance assessment is challenging; however, the use of an inquiry-based learning (IBL) allows teachers and students to involve themselves at a deeper level of instruction through differentiated activities. The assessment procedure through IBL implies an alternative view of instructors when designing their assessment, learning, and achievement of the learning objectives. The proposed conceptual framework involves a combination of competency-based learning principles, performance assessment, and IBL. In the initial stage, it is proposed to design differentiated IBL activities following the task description, considering the required competencies to be achieved. The final stage is tackling it as an assessment framework that focuses on performance for final summative purposes.

Keywords: competency-based learning, inquiry-based learning, online assessment, performance-based assessment, COVID-19, higher education

1. Introduction

Due to the coronavirus disease 2019 (COVID-19) pandemic, students were suddenly required to complete their assessments online. Similarly, higher education (HE) institutions and instructors likewise suddenly forced to ensure competency achievement among students online. Lund and Kirk [1] report that performance-based assessment (PBA) focuses on judgment and observation. Typically, such approaches involve the assessor's observation of the learner while performing a task or reviewing a task that has already been performed by a student before evaluating the overall quality of the product. Although teachers often design performance-based tasks to enable individual learners to demonstrate their understanding of the instructional content by applying it in different situations, effective performance-related tasks entail the acceptance of many forms of solution. In most cases, for this approach, students are called upon to defend or explain their solutions [2]. It is critical to understand that

performance-related tasks constitute both an opportunity for the assessment of the quality of learning and feature an instrumental aspect for the learning process.

According to Stanley [2], PBA is an alternative to traditional testing approaches. This approach entails the use of a critical problem-solving process that is not only essential for the learning context but also extends to real-world situations. Logically, these forms of assessment call for students to develop a product or respond to a question in a way that demonstrates their understanding and skills [3]. For this reason, this approach does not admit of a right or wrong answer in an absolute sense. Instead, PBAs call for learners to play an active role in the performance of the given task and in the entire assessment process as a whole. In most cases, the tasks are interdisciplinary and practical, to enhance their applicability. As Lind and Kirk argue [1], PBAs do not provide any deeper insight into how students are learning but do provide a clear direction on how they understand the content that they are studying. With this knowledge, educators are better able to understand the specific aspects in which a learner may need further assistance. In response, they can modify their instruction to suit these needs.

A separate study [4] indicates that PBA is focused on students' engagement in specific learning tasks to demonstrate their level of knowledge and skills. These tasks are often based on issues that arise in real-life situations and are student centered. Usually, teachers conduct PBAs through speaking with or listening to students as they complete learning tasks. Assessment is a continuous process that enables teachers to identify a learner's ability to reason and think [1]. Teachers can use assessments to adapt their teaching practice based on the performance of their students. According to Stanley [2], PBA enables students to learn while being assessed and to acquire self-evaluation skills. As such, it could be argued that this type of assessment promotes self-improvement and continuous learning among students. This chapter discusses PBA through inquiry-based learning (IBL), with particular emphasis on online assessment with competency-based learning.

2. Understanding performance-based assessment

PBA is a fundamental means of ensuring that assessment can be both beneficial and interactive for both learners and educators. Generally, PBA is for providing assessors with the chance to measure performance and competence as the assessed students demonstrate their skill [1]. It has been argued it is necessary for PBAs to portray real-life situations. Likewise, it should exhibit an effective strategy for the test takers to develop their responses. Broadly, PBA helps orient the test toward productive writing, speaking, or any other selected skills rather than highlighting preselected responses. For instance, PBA activities should allow students to display written and oral skills, perform experiments, develop projects, and participate in oral interactive activities in small groups or at an individual level [1]. These learning activities can promote the overall authenticity of the entire assessment process, motivating the learner to use the skills that they have acquired in real-life situations.

PBA has proven beneficial in several ways. In particular, the contextualization of the principles of assessment under PBA shows a high level of validity, washback, and authenticity [2]. Washback refers to forms of negative or positive impact that result from testing, taking the form of a teaching and learning process. Stanley [2] reports that positive feedback can promote learning and form a basis for the establishment of a positive atmosphere within the classroom. Further, it can enhance overall cooperation between educators and learners. In essence, it strengthens the position of learners and gives them

a chance to share their views. Indeed, learners have the chance to discuss their overall performance with their educators to enable them to improve their ongoing learning.

Furthermore, performance assessment can involve a high level of authenticity where it portrays real-life situations [3]. This refers to the extent of the correspondence of the qualities of a test. Administering authentic PBA shows an acquisition of productive skills. Among educators, this approach provides a chance to identify specific strengths and weaknesses in their teaching methodology [1]. Thanks to this information, they can develop their strategies and make necessary adjustments. In addition, it enhances autonomy, as learners get the chance of performing real-world tasks as part of the PBA [3]. Similarly, the validity of an assessment stems from its ability to evaluate what the instructor intends to evaluate. In essence, teachers can use valid tests for communicative purposes. For instance, the most effective strategy for measuring learner performance is to design appropriate activities based on the learning area while the assessment is ongoing.

Accountability and assessment standards have traditionally been quantified through the administration of standardized tests. The limitations and flaws of this approach are evident [3]. Usually, test contents emerge from a series of compromises among in a curriculum development groups. Test publishers have the responsibility to ensure that selected test objectives match the wide variety of textbooks in use. According to Lund and Kirk [1], this implies the need to narrow the contents covered during the learning process. Designing tests to emphasize basic skills limits and constrains the overall complexity of learning contents. The integration of practical considerations further limits this content by incorporating the use of a multiple-choice format, which is easier to administer and cheaper than open-ended and student-generated responses. Despite these drawbacks, standardized test scores continue to play a central role in assessment.

In the twentieth century, standardized tests were commonly used as indicators of students' learning. Taking into account current knowledge on how new knowledge is acquired and processed, the evident should prompt policymakers, parents, and educators to acknowledge the possibility that such test formats are misleading and inaccurate measures of students' learning [3]. Even though they have been proven to be inaccurate or invalid, standardized tests are an effective indicator of test-taking and fact-memorizing skills. However, the memorization of pieces and bits of knowledge cannot prepare learners sufficiently for the real-life challenges. Valid tests should demand complex mental processes from individual learners [2]. This should incorporate the recognition of more than one correct approach.

3. Online assessment

3.1 Online summative assessment tasks

The COVID-19 pandemic has led to the need to limit human interaction, and the associated travel restrictions have influenced the assessment of educational content. Online assessment approaches have come to the forefront as educators seek to reach learners in various locations [5]. The influence of the pandemic in combination with technological advancement has prompted the educational establishment to shift to predominantly using online teaching methods. For this reason, summative assessments have shown a significant increase, which has proven to be a successful way of evaluating learners using online instruction. According to Rahim [6], educational policymakers and teachers are responsible for making strategic decisions in the development of assessment. As part of this process, they must determine what

students need to learn, and they should ensure that they can produce evaluate essential knowledge as part of remote and in-person learning.

Larry Ainsworth's REAL criteria are used for administering online learning. The acronym stands for readiness, endurance, assessed, and leverage. Here, readiness is focused on evaluating whether learners have gained the necessary knowledge for the learning field [5]. Broadly, this entails the use of the examination to determine whether students are ready to be presented with new information. Endurance refers to the idea that learners should demonstrate knowledge that they will retain after the examination. Assessed describes the need to conform to the standards for learning set by the educational authorities. Finally, leverage describes the need to ensure that the knowledge that is tested is applicable across a wide range of disciplines [5]. When engaging students in online learning, it should be kept in mind that they be consistently assessed to determine their adaptation and knowledge acquisition.

Among the most important ways that students can increase their level of content understanding is engagement in performance tasks. These tasks involve open-ended questions, use real-life situations, and rest on a fundamental similarity between the performance of the task and the performance items [7]. The emergence of the pandemic has led to uncertainty in this area that may lead to a feeling of being overwhelmed among students. Teachers must consider students' lives as they live outside the school by ensuring that assessment tasks are divided into manageable portions. By this means, these tasks can be handled with greater ease and the need to cram content is evaded. In this process, teachers should embrace verbal communication and conversation with students to determine whether they have internalized and understood learning content [6]. Teachers should play a fundamental role in ensuring that they introduce the human element during online learning. Logically, they can achieve this by maintaining the same standards as those in face-to-face learning.

Similar to most other instructional content, online assessment has become a useful component of learners' language skills development. Language proficiency is a key aspect in learning and teaching that teachers must promote [8]. The criticality of language skills for real-life situations, such as in job applications, should cause teachers to test students on language competence and knowledge. Indeed, language proficiency assessment can lead to succinct and clear statements of individual learner competency in language, and it is more personal [8]. In other words, when using this type of assessment, teachers must ensure that they are considering individual differences among students in the assessment design. This will enable the application of such knowledge in a real-life situation to be adequately represented.

3.2 Online performance assessment

Modern online learning environments create a new opportunity for educators to combine elements of distance and the possibility of dynamic learning. Gamage et al. [9] argue that with this new approach, the objective is to embrace collaboration and extensive communication. The use of instructional tools that promote engagement, such as email, threaded discussions, and electronic bulletin boards, is critical for the functioning of online platforms. Online learning tools can also help provide access to a wide range of learning resources. Accessing information through online resources such as the World Wide Web can enable learning institutions to provide their students with instant access to many libraries assessment resources [9]. Therefore, it is the responsibility of the institutions and the individual teachers to identify and provide their students with the necessary online assessment resources. For example, AlShamsi

[10] explored the influence of using an online learning community in instruction with female college students. An instructor worked with female college students to create online learning communities through IBL. The instructor ensures that the learning requirements meet institutional expectations with an IBL approach that promotes the social and cognitive presence of the students.

Many strategies can be used by teachers to support online learning assessment. As Gamage et al. [9] indicate, teachers may first need to ensure the authenticity of the assessment process by making critical decisions with respect to how assessments can be structured. Second, teachers should be sure to provide learners with the information and learning tools that they need to thrive. Tools such as the WIDS Performance Assessment Task Library, online delivery courses, and scoring guides can be useful for this process. Another strategy to consider is the establishment of an online environment that promotes authentic assessment. Much of this requires using existing online communication tools to facilitate performance assessment. Finally, teachers should ensure that their students are provided with the opportunity to practice and given necessary feedback [9]. Designing main tasks and sub-tasks with clear stages of intervention ensures that provided feedback on performance is integral to learners' success [11].

Online inquiry assessment is the subject of multidisciplinary research that justifies why addressing PBA requires an interdisciplinary approach. Inquiry tasks create the need to bridge task-based interactions in comprehension and online research [12]. These tasks, are foundational for providing a strong theoretical perspective in developing test assignments. In the recent past, scholars have been contributing to the development of performance assessments. These efforts have greatly supported online inquiry competencies. Within the context of an interdisciplinary approach that forms the basis for the development of PBAs, it is possible to design effective competencies for online inquiry [12]. Educational research focused on attaining these objectives is opening avenues for the development of performance tests that can effectively evaluate performance in online inquiry tasks. AlShamsi [11] investigated the use of WebQuest, an online learning platform that promotes performance assessment through IBL. She found that WebQuest was a collaborative tool that enabled a community of inquiry to be built, wherein the required competencies and skills were achieved through frequent feedback sessions. In that study, the instructor was able to implement sub-tasks to ensure fair opportunities and higher levels of engagement among the students.

There are several tools available for the online assessment of language skills. For instance, the test of English as a foreign language (TOEFL) is a useful tool for testing English language competencies, including speaking, listening, and writing skills. Teachers seeking to test their students' level of English competency can use the online version of TOEFL for their students to complete within the necessary 4.5-hour period [6]. Another useful online tool for language assessment is the International English Language Testing System. Academic use of this tool provides passages and questions that can help test students' ability to thrive within an academic environment.

The use of an online IBL tool that involves group projects has been beneficial for HE practices. In a study conducted in the Emirati context, AlShamsi [11] suggests that assessing group efforts that implement tasks and sub-tasks should grade the stages toward completing the final task while making use of frequent feedback. AlShamsi indicates that this is crucial for assessing the final product of the group and the degree of each participant's contribution toward the final product, in addition to the quality of their responses to the feedback provided. The quality of assessment should be a major concern in online assessment practices [13]. To mitigate this concern, researchers have suggested the use of collaborative tools in teaching and assessment practices while

considering institutional and program quality assurance measures. Within a teacher education course, for example, AlShamsi [11] planned final assignments using a project plan that was collaboratively designed with students. Here, the students were divided into groups, and primary assessment tasks were created that could be divided into sub-tasks based on the educational levels and needs of the students or groups. The intervention plan or the project plan included one-on-one meetings and interviews via Zoom as needed by the group to measure their progress in each task. AlShamsi [11] reported that students were able to experience deep learning, perform challenging tasks, and develop a deep understanding of the course material, which ensured knowledge retention and the achievement of the learning objectives. Generally, this project plan ensured equity among female college students with varied education levels and needs.

4. Approaching summative assessment through performance assessment

Summative assessment theory forms critical part of teaching and learning. This approach is based on the evaluation of students' level of academic attainment at the end of the semester, term, or year [14]. In this assessment, the emphasis is on comparing achievement to school benchmarks and universal standards. Often, summative assessments are given to a high point value, and occur within controlled conditions, providing a high level of visibility. Educators can use performance assessment as a summative tool. For instance, teachers can judge students' performance based on a given score or rubric [14]. According to Dixson and Worrell [15], the use of a rubric enables teachers to set specific standards for class performance on assignments and tests. Teachers can approach summative assessment through performance assessment by designing effective and clear questions, tasks and sub-tasks, evaluation criteria, and clear instructions. In doing this, it is necessary to ensure that examples, language, and phrases are used that reflect the ones that played a part in class lessons [11].

4.1 Competency-based learning and assessment

Generally, competency-based assessment is an ongoing, rigorous process that focuses on building and testing students' abilities. This learning approach is targeted to prompt the students to gain the skills to navigate the contemporary world [16]. It is the responsibility of educators to ensure that their learners develop and sharpen their capabilities to reflect modern societal needs. Competency-based evaluations in an educational context are not only focused on the acquisition of new skills but also emphasize the need to define competency levels at various learning stages [16]. These approaches allow teachers to help students gradually progress in their content mastery and apply it in real work situations.

Teachers must consider various steps to successfully implement competency-based learning and assessment. First, they must conduct diagnostic activities for their students to identify their existing knowledge [17]. Usually, this is based around the competencies of the learner and helps the personalization of the teaching approach. Second, the teacher must develop an instructional design based on the identification of specific learning outcomes for a given course even before the commencement of the learning process. The next step is for teachers to identify the assessment activities. Automated grading is effective here, especially in low-level cognitive domains [17]. However, while investigating higher level cognitive skills, educators may have to consider direct assessments, such as observational grading, written essays, and case study analyses.

The next step is for teachers is to define the outcomes of the learning cycle measurably and clearly. Following this, they must identify the required competency-based assessment tools to enable them to manage performance development [17]. Such tools may include case studies, interviews, test questionnaires, and assessment centers. All of these steps should help properly place feedback within the assessment process [12]. Feedback is an integral part of competency-based learning, as it helps the teacher guide students along the right learning path. The next step is to measure the level of student success following the completion of competency-based learning. Finally, it is necessary to conduct further analysis of the results using learning analytics [18]. Because the competency-based approach helps in conducting both qualitative and quantitative assessments, the results should indicate areas that need encouragement and improvement through effective feedback and clear implementation stages [11].

4.2 Considering the needs of diverse students

At present, classroom diversity forms an integral part of education, enabling teachers to identify and address the varied learning needs of different students. A diverse classroom includes students who have different socioeconomic classes, ethnicities, backgrounds, personalities, religions, and reading levels [19]. Competency-based teaching and assessment approaches emphasize the need for educators to ensure that they value the specific aspects that determine differences among students to ensure equity in assessment [11]. During learning and assessment, teachers need to focus on helping students embrace their diversity and considering their strengths rather than their weaknesses [16]. This divergent perspective can facilitate the development of positive learning outcomes for the benefit of individual learners within the classroom.

5. Inquiry Based Learning process

5.1 Differentiated activities for IBL

IBL is a teaching approach that reflects a learning environment in which students play an active role, and the teachers is restricted. A wide range of salient characteristics of IBL justify the relevance of this process in performance assessments [20]. These characteristics include the administration of learner-centered activities, problem-solving, considering the teacher as a facilitator than the only knowledge provider, and developing activities that shape rediscovery. It is critical to understand that these are attributes of PBAs due to their emphasis on the role of the student over that of the teacher [20]. By embracing IBL, teachers can enhance the role that students play in the teaching-learning process for practical purposes.

Overall, there are four levels of IBL: structured inquiry, confirmation inquiry, open inquiry, and guided inquiry. In confirmation inquiry, teachers provide learners with procedures and questions, and the outcomes are known in advance [20]. Broadly, this helps focus on a previously introduced idea. Further, it introduces the learners to the process of conducting an investigation and enables them to practice specific inquiry skills [20]. In structured inquiry, the teacher continues to provide the procedure and questions. However, the students bear the responsibility of developing the results and explaining them through the use of supportive evidence. In a guided inquiry, the educator's responsibility is to provide learners with a guide and research questions [20]. It is only then that students have the duty of designing procedures that enable them to arrive at results with evidential proof.

However, this is not the case for open inquiry, in which the learners have to develop their research own questions. Further, they must create and perform their procedures themselves and communicating the results on their own in a consistent manner. It is important to recognize that all four levels of inquiry are incorporated in PBA, in several ways. For instance, guided inquiry is based on constructivism and embraces the use of teachers' activities for learner-centered learning. According to [11, 18], this method encourages students to interact in various contexts and focuses on learning, not merely on fact memorization. This method has proved as a framework for educational transformation to create a system that mirrors development in the twenty-first century.

5.2 Involvement in a process

Modern society creates a unique challenge for educators in developing and implementing learning approaches that can help solve existing problems. Developing particular skill sets, such as independent learning, can be useful in impelling learners to demonstrate a resourcefulness that enhances in-depth understanding of some subject matter [21]. The guided inquiry approach is integral for assisting individual students in acquiring modern skills that are relevant in the twenty-first century. The skill sets of as self-direction, collaboration, self-assessment, adaptation, and creativity are important here. There is strong evidence to suggest that the consideration of an IBL approach can help improve the overall learning process among students. Studies that have integrated this approach have found it to be effective in learning and teaching in improving learners' literacy skills in areas such as knowledge, attitude, and competence [21].

Importantly, the findings of such studies are consistent with previous claims advanced by many scholars. Such studies demonstrate that integrating an inquiry learning approach into science and technology instruction can significantly promote the acquisition of critical skills among students [21]. The same pedagogical approach is useful for increasing academic achievement among students in science. According to Khalaf and Mohammed [22], this approach has a positive impact on learner effective and cognitive characteristics, as demonstrated by the improved understanding of scientific concepts alongside inquiry skills within the experimental group. Khalaf and Mohammed [22] argue that IBL can be useful for helping students improve their overall cognitive ability with reference to performance goal dimensions and self-efficacy. It is clearly important for PBA to be based on inquiry to enhance students' outcomes over the long run.

6. Course competencies

In IBL, educators must focus on one or another specific course competence to enhance students' acquisition of knowledge. According to Efendi et al. [16], this can help ensure that students grasp the required skills and knowledge taught in a course at an individual level. However, it is necessary to combine inquiry-based and traditional learning approaches for maximum student achievement. Previous studies have shown that even though the inquiry-based approach has been in widespread use in science for several years, it has only witnessed a limited integration in mathematics [16]. In spite of these claims, it is evident that the adoption of an inquiry-based approach is more effective for enhancing teaching and learning relative to traditional approaches. The research gap regarding the use of inquiry-based methods in mathematics is a call for action. Where this approach has been adopted in mathematics, the focus has been limited to plane geometry instruction [17]. In a teacher education program. For example, the instructor

examined the use of inquiry-based approach to facilitate final summative assessment by means of performance assessment. The instructor designed tasks and sub-tasks to ensure fair opportunities in achieving the course learning objectives. The students valued the constructive feedback that they received, which enabled them to work in teams and motivated them to complete their final assessment collaboratively although the planned individual interviews enabled the instructor to assess the students' individually [11].

7. How to approach assessment

Assessment is a core aspect of overall learning and teaching process. Usually, its outcomes are used as a basis for determining future undertakings among learners, such as selection for job interviews and entering institutions of higher learning [17]. As such, there is a need to integrate both learners and educators in an assessment process to allow its outcome can be beneficial to all stakeholders. However, in most cases, teachers orient their assessment to attain the purposes of the curriculum rather than considering learners' specific learning goals. Some educators have been critical of the persistent use of old standardized tests by educators, ignoring considering learners' particularities [17]. Indeed, most assessment tools used are decontextualized traditional instruments that sometimes fail to address modern learning goals.

Concerns have been raised that assessors may themselves struggle to provide their learners with a constructive feedback that can promote their learning. Such criticisms are prompted by the fact that many teachers may provide little or no formative feed-back that could be instrumental in guiding learners in their future studies [17]. Much of this takes place through overreliance on traditional assessment methods. Logically, when an assessment fails to meet the specific requirements that an individual learner sets, learners experience demotivation and anxiety. However, this is opposite to the response an ideal assessment would provide [1]. Therefore, the need to reorient assessment as a whole toward contemporary real-life situations and then contextualize it can significantly help stimulating a higher level of learning. Ultimately, this can boost the interest of learners in assessment-related tasks for maximum educational benefit.

Broadly, assessment should be at the core of learning practice in a classroom and should link learning, teaching, and the curriculum. However, this is not always seen, as assessment is often used by educators to assign grades at the end of instructional units [1]. Further, assessment tends to be used to categorize students as successful or unsuccessful after the end of an instructional term. In most cases, teachers rely on written work that entails the completion of imaginative learning routines and exercises. Generally, this approach is contrasted with the modern conception of assessment, particularly, the PBA, which is administered in many ways. As noted above, PBA is implemented through observation, listening, and talking with individual students [2]. During this process, teachers have the responsibility of asking students questions and identifying their reasoning.

When the PBA is used in this constructive manner, teachers can develop a better understanding of the reasoning and thinking abilities of their students. This kind of approach can also be a powerful tool for enabling educators to monitor the overall effectiveness of the learning process [17]. In the end, teachers can judge the utility of general learning tasks and determine next steps for learning instructions. According to Lund and Kirk [1], however, PBAs can be ineffective if teachers do not design classroom instruction. Significantly, it is the responsibility of educators to incorporate performance-based tasks in combination with ongoing assessment [17]. Designing and administering effective PBAs can follow students' learning goals, communicate

the right message to them, be aligned with the current instructional theory, and describe individual learners rather than sorting them.

PBA has attracted increasing attention due to the nature of the standards and goals that educators often set for students. In cases, new standards are focused on addressing critical thinking concepts, communication, problem-solving, lifelong working, and collaborative working, leading to a need to consider the standards for task evaluation (Stanley, 2020). Admittedly, this new approach embraces innovative assessment that is useful in the current context. Broadly speaking, performance assessment is not a novel or a new approach. Over the years, teachers have incorporated daily classroom observations of the learning progress of individual students for purposes of evaluation [1]. Nevertheless, new approaches to attach a central role to this evaluation modality have been developed for large-scale assessments and the commitment to make daily evaluation more systematic and consistent.

Broadly, educators must play an active role in making PBAs systematic and objective. Specifically, they must ensure that learning goals be clearly established [17]. As soon as the goals are established, the best assessment technique must be chosen for every goal. Admittedly, performance assessment may or may not be the most effective approach, depending on the nature of the content being assessed. Modern cognitive and brain psychology demonstrates that the learning takes place in situations where students construct their knowledge and play an active role in developing cognitive relationships between facts and concepts themselves. As such, for students to become adept in reasoning and thinking, it is necessary to ensure that they practice solving real problems. According to Lund and Kirk [1], low-achieving students suffer the most when a proficiency-driven curriculum is made the center.

Educators recognize that the most effective instructional techniques are those that actively involve students in the entire process. Initially, educators valued the acquisition of knowledge using traditional teaching and learning methodologies ***(Stanley, 2020). However, this is no longer the case as information continues to grow and technology to advance. As Wang et al. [17] report, in the contemporary world, students must acquire and utilize information in real-life situations. Throughout their lives, modern students encounter situations and problems that lack clear-cut definite answers. Instead, they must analyze these situations and apply their knowledge and skills to generate acceptable solutions [17]. Learners must adopt novel ways of doing something using different approaches from the ones they use in other instruction, as learning emphases change.

In situations where assessment scores have significant implications, such as town ranking, student placement, and state financing, teachers' role in adhering to the content of the test must be demonstrated. Over the long run, this practice can result in overall instructional corruption [1]. Indeed, teaching for the purpose of the test undermines and deepens the general authenticity of test scores an accurate measure of a student's mastery of the learning content. Furthermore, it leads to an unbalanced focus on tested content while ignoring undertested aspects. For instance, educators must consider discarding essay-type tests because they are more inefficient than multiple-choice tests [1]. The most effective type of instruction relating to the multiple-choice format is those that provide practice and drill on decontextualized and isolated skills.

8. Conclusion

The study of PBA is attracting significant scholarly attention among education researchers. Many studies have investigated the relevance of this approach, especially

now, due to the prevalence of online assessment. Indeed, the COVID-19 pandemic has created the need for educators and learning institutions to implement online assessment since there was limited human contact. As discussed above, the integration of IBL within performance assessment is crucial for shifting from traditional assessment approaches to modern strategies that give learners the chance to apply their knowledge in real-life situations. Summative assessment is crucial for evaluating learners' mastery of content and their ability to apply the knowledge and skills they learn in the classroom in real-life situations. Logically, this crucial aspect of PBA drives its applicability to modern educational arenas.

The conceptual framework proposed here is a combination of competency-based learning principles, performance assessment, and IBL. This combination makes it possible to effectively evaluate individual students after completion of learning. In this way, the educator can focus on addressing the learning challenges that students have at the individual level. The initial stage proposed here is to design differentiated IBL activities following the task description, taking into account the required competencies to be achieved. The final stage is to tackle it as an assessment framework that focuses on performance for final summative purposes.

The use of rubrics enables teachers to set specific standards for performance on assignments and tests. Furthermore, teachers can approach summative assessment through performance assessment by designing effective and clear questions. **Figure 1** depicts the proposed conceptual framework by to indicate a more comprehensive sequence of approaching summative assessment through performance assessment and IBL process.
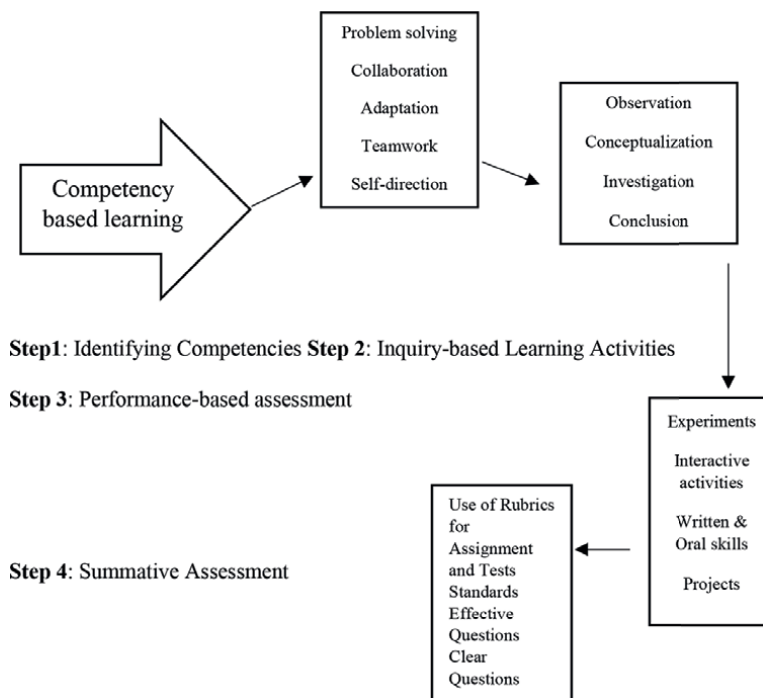
Figure 1.
Performance assessment through inquiry-based learning.

Conflict of interest

The author declares no conflict of interest.

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Chapter 2

Perspective Chapter: Impact of Assertive Social Skills on Problem Solving of University Students

Zeimara de Almeida Santos

Abstract

The entry into Higher Education means the realization of a dream for many people, but along with this achievement difficulties can arise, lack of information on the functioning of the university and expectations that do not match the reality of this context. The new environment can represent a difficult time to have to adapt to deal with criticism, overcome family distance, frustration with some expectations and establish new interpersonal relationships. Students are often surprised by new situations that occur during the course of early academic life and may feel threatened by changes inherent in the university experience. Although the literature recognizes the importance of the construct Social Skills, research in this context reveals difficulties in integrating Assertive Social Skills and Problem Solving that are required in any profession full of interpersonal demands. The present chapter sought to highlight the impact of Assertive Social Skills in Problem Solving in beginning students. The findings contribute positively to the understanding of the process of adjustment to the university context, as they expand the perception of the difficulties experienced by students in academia. In general, we highlight the need for future research that can influence institutional proposals and public policies that strengthen the experience of students and improve training processes in this area.

Keywords: social skills, university, higher education, problem solving, creativity

1. Introduction

When entering Higher Education most students face different challenges, such as dealing with new relationships and adjusting to new requirements. These challenges configured by the university context can be exhausting to the point of generating physical and emotional exhaustion of the student. This recent and complex atmosphere can be perceived by undergraduates as a scenario that requires behavior changes. This applies to the understanding of new ways to be evaluated, to follow different methodologies and to receive new content [1], in the act of corresponding to the interpersonal relationships required throughout the training [2] understanding of the expansion of autonomy to test new experiences [3].

In order to manage these difficulties, national and international statistics point out that living with the adversities of the first year in the academic context is critical when

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students are disposed of cultural and economic resources, even for a limited period to respond satisfactorily. Thus, incoming students are unaware of the new dynamics of the third degree and are often the first family members to attend university, they need special attention from educational institutions, teachers and support programs [4].

2. Ability to solve social problems of university students

According to some authors [5, 6], the difficulties encountered by students in the early periods of graduation can cause discomfort and difficulties. The obstacles to be overcome include adaptation problems to psychosocial disorders that can lead to academic evasion [7, 8]. In this sense, this theoretical study aims to show how the Assertive Social Skills and Problem Solving are crucial to handle conflicting situations that go beyond theoretical and technical knowledge during the university course. In view of this, it can be said that the promotion of Assertive Social Skills has been pointed out as a protective portfolio in improving the quality of life of students, since they are elements considered facilitators of these difficult situations.

To illustrate the theme discussed here, the study [9] aimed to identify the relationship between resilience, coping, social skills and problem solving and comparing the aforementioned constructs in Psychology students and other students from other related areas to outline an overview of how students solve problems. When studying students, it was noticed that the students of Psychology had deficits in Social Skills in relation to university students of other courses. This may mean that Psychology students are not prepared to deal with conflict, assist in decision making and have relational difficulties. The results showed differences on how university students face their adversities thus favoring the discussion of the training of undergraduates. These notes corroborate the research that supports that the formation of university students should favor the development of social skills in interpersonal relationships for problem solving since social skills are identified as a good variable social adjustment, development of interpersonal difficulties.

Another construct that was also intended to relate these constructs was Almeida Santos and Soares [10]. The authors aimed to identify the impact of Social Skills in solving problems in university psychology. He demonstrated in his results that the way of coping with problems and the Social Skills together explained how students solve their social problems, that is, students who had an elaborate repertoire of social skills along with cognitive/behavioral effort to regulate and manage problem situations, improved their overall ability in decision making.

The concept of Social Skills (SH) can be understood as different classes of social behaviors that help individuals face the processes of interpersonal interaction [11]. In turn assertiveness is an ability to confront, defend rights and express thoughts in a direct, honest and appropriate way, which does not violate the rights of another person and can be considered a skill of communication and social interaction [12]. Therefore, it is understood that the HS classes presented in Del Prette and Del Prette [13] cover communication, assertiveness, conflict management and resolution of interpersonal problems. Thus, the individual who has an elaborate portfolio of Social Skills, will probably have built a repertoire of behaviors, which can serve as support in difficult times.

Given the recognition that HS frequency measures are insufficient for a broad analysis of the multidimensionality of the concepts of skills and social competence, Teixeira [14], developed a multimodal instrument to analyze assertive skills. The instrument includes the achievement of indicators of antecedents and consequents

of a social performance, thus allowing analysis of the circumstances and effects of social performances on interactions. Instruments of this nature expand the conditions for evaluating social performance and, according to the author, contribute to a better behavioral characterization, and to the planning and evaluation of intervention programs in HS. The author also highlights the potential of the instrument for the use articulated with the theoretical and applied knowledge of the behavioral analytical approach. In addition to this advantage, by raising the antecedents and consequences of a social performance, the instrument enables the capture of the participant's knowledge about situational conditions and values of culture, as well as the assessment of compliance with the criteria of social competence based on the impacts of the consequences on each interlocutor.

Given the interpersonal nature of the student, it is evident, the need for development and improvement of social skills beyond the learning of academic content. The management of social relations in the academic context related to technical competence is pointed out as a criterion for good performance of the university student [15]. These same authors consider that the practice of these skills should be interactive to facilitate the development of people's interpersonal skills and not only restrict the technical qualification. Scholars [16] of the area of Social Skills complement showing that third degree training should articulate both technical and social competence, with mastery of specific techniques, theoretical knowledge that subsidizes critical thinking and social performance that meets different social demands. Thus, it is understood that social competence is considered as an important criterion for the student's performance.

Furthermore, the ability to Problem Solving can be used to deal with the perceived excessive demands resulting from situations of emotional discomfort. Thus, it can be inferred that, regardless of the academic moment, the student will face unexpected situations, reinforcing the need for the development of creativity and a repertoire of Assertive Social Skills satisfactory to solve adverse situations. Problem-solving skills are poorly studied in college students in general, and can be defined by a meta-cognitive process that covers understanding the nature of the problem in which the student identifies, discover or elaborate effective or adaptive strategies to face social problems present in daily life [17]. In general, problem solving involves coping and cognitive/behavioral effort to regulate emotion and manage situations [18] as well as directing efforts to deal with interpersonal situations.

It is notorious that the third degree implies directly in the interpersonal relationships of the student public, especially in Problem Solving, in dealing with interpersonal problems related to the community and society [19]. Fang et al. [20] in a study on the problem-solving ability of nursing students, sample of 681 participants from Chinese universities and used the Inventory of Social Problem Solving in the reduced version and adapted to the Chinese reality. The group with specific training in Critical Thinking showed negative problem-solving results compared to the group without training. The authors concluded that social problem-solving skills vary according to the strategies employed in the teaching-learning process and suggest that self-directed, problem-based learning can be effective in improving the ability to social problems. These same authors also suggest that knowing psychosocial characteristics present in undergraduates can help universities in building preventive strategies to improve the social ability to solve problems of these students. Psychosocial characteristics are the thoughts, feelings and actions that appear more intensely in relationships and in the possible difficulties experienced, in this case, in the academic context.

Given that social competence is crucial for student development and when considering the requirements and challenges of the university context, Seco et al. [21] proposed Programs of Training of Transversal Competencies carried out with the beginning students of the Higher Education aiming to favor the integration to the institution and to develop Social Skills. These authors indicate the demand to contemplate students with the development of individual, emotional and social skills, while taking into account family relationships and involvement in activities that enable the development of interpersonal skills. However, these interpersonal relationships established in the university context can provoke reactions of emotional discomfort, feeling of rejection, dissatisfaction with the contents and even difficulties in the learning process [22]. Given this concern, the study of Soares et al. [15] sought to identify how university students perceive their experiences in interpersonal situations in the academic space. The results allowed to verify the student's difficulties in dealing with interpersonal relationships (especially regarding the teacher/student relationship and the teacher's didactics).

In another study, Soares et al. [23] identified the perceptions of 12 university students from a public university regarding the interpersonal relationships established with students, teachers, managers and employees. The conclusions made it possible to confirm that such relationships are perceived as unsatisfactory regarding the relationships between student/student, student/teacher and student/employee. These last results also indicated that the relationship between students/ managers is satisfactory, since the interactions showed behaviors of civility, empathy and assertiveness, essential factors for the area of social skills. Thus, the study indicated, as a result of its results, that a better academic adaptation could be favored with the acquisition of assertive skills to deal with teachers, managers and employees at the University [24].

From the perspective of making students acquire more social skills in university interpersonal situations of interpersonal relationships, Lima and Soares [25] structured a training of social skills from situations considered difficult in the academic context. This analysis aimed to favor the confrontation of arduous situations, having as objectives the acquisition of social skills by university students; the strengthening of already existing social skills and the extinction of competing behaviors in a preventive character. The study of these authors included the participation of 11 university students from public and private institutions of Higher Education in the State of Rio de Janeiro. In addition to relational skills, the university context requires autonomy in solving academic demands, such as meeting schedules, attendance in classes, internships and conducting evaluations. Therefore, these needs can characterize a difficult time and many challenges, as they will have to demonstrate responsibility and proper relationship so that they can make decisions in order to solve their problems.

Reflections on problem-solving skills in university students motivated a correlational-descriptive study [26], which aimed to verify the relationship between the mental health of undergraduate students (Medical Science, Human, Agriculture, Engineering and Art) with the resolution of social problems. With a sample of 369 university students, data analysis showed that the difficulty of solving social problems was significantly negatively associated with somatic symptoms, such as anxiety, insomnia, social dysfunction and severe depression. In this direction, having the ability to solve social problems enables an analysis of choices, which enables university students to effectively implement coping strategies to deal with problems and demands of everyday life. Problem solving increases the likelihood of coping adaptation and reduces the everyday difficulties of life [27]. Solving problems involves coping and cognitive effort to regulate emotion and manage situations, which leads us to define coping strategies.

These strategies can have different styles, for example, the problem-focused, which is understood as an effort to modify the situation that originated stress, emotion, which are defined as the effort to regulate the emotional state and social support, that concerns the support of other people, because it is expected for solutions that are independent of the action of the individual [28]. In addition, coping strategies have an impact on the individual's quality of life. In general, students of both sexes differ in perceived ability to deal with problems. Possible determinants, for example, age, sex, religion, college and academic performance, may influence the development of problem coping capacity [29].

3. Conclusion
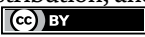
Although there is an expectation that the future professional responds positively to the interactive demands of their performance, after academic training, faces the difficulty in properly handling the processes of interpersonal interaction. Thus, it is pertinent to identify the interpersonal difficulties of university students in practice and in this sense, the study of Santos and Soares [30] reiterates that assertive social skills can explain the solution of students' problems to deal with the adversities of the university context, as well as identify effective ways to solve the problems experienced by students. However, to be able to really effective interventions in improving deficits found in the academic environment, is important, initially, the improvement of Social Skills in university students as a requirement for the learning process and important stage for the career development of every professional.

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Perspective Chapter: Approaches to Quality Assurance and Technological Innovation in Higher Education Institutions

Ahmed A. Al-Imarah

Abstract

Literature from the wider field of management research is ambiguous with respect to the relationship between quality management and innovation, with some arguing that quality management supports innovation while others claim it is a hindrance. This chapter focuses on the relationship between QA and innovation in higher education, specifically the development of massive-open-online-courses (MOOCs). Analysis of interviews and documents shows that QA does not support innovation; universities focus on the quality of conventional in-person courses, but less on new innovation like MOOCs. The particular characteristics of MOOCs (e.g., diverse learners and light content) make the application of existing QA procedures difficult. Also, analysis shows that the most relevant quality approach for MOOCs is a combination of the conventional approach to QA in higher education and a new QA approach that takes into consideration the characteristics and features of MOOCs. The findings of the study provide suitable empirical evidence to support a cogent argument about the capabilities and qualifications of MOOCs in higher education with regard to QA, further defining the role of MOOCs in higher education.

Keywords: quality assurance, innovation, MOOCs, higher education, United Kingdom

1. Introduction

The aim of the chapter is to contribute to the emerging debate on the relationship and interplay between innovation and quality management. It explores how innovation and quality assurance (QA) interact in organizations, using massive open online courses (MOOCs) as a context to understand this phenomenon. Literature indicates that QA is considered a crucial part of any higher education system. QA improves the programs of higher education [1], and contributes to identifying problems and finding solutions [2]. QA is necessary to prove that the standards are sufficient and harmonize with global market needs [3], and it is the condition that indicates how effective learning can take place [4]. However, there are significant arguments about the relationship between quality management (including QA) and innovation. Some studies indicate that quality

management supports innovation [5–8]. Others have questioned this relationship, suggesting QA might hinder innovation [9–12]. In this regard, few studies have been conducted on the QA of technological innovation, and studies stress that QA is one of the greatest challenges to MOOC programs [13]. Studies also indicate that there is no clear view of the requirements and processes of QA and no standards for the quality of MOOCs [14], or the way of assessing the quality of these courses [15]. MOOCs, therefore, lack QA of the type commonly used in higher education, even though academic literature continually highlights the importance of QA.

The early attention to MOOCs emerged from the idea that these courses can be a relevant solution to the challenge of the global massive demand for education [16]. MOOCs also arose as a result of perceived shortcomings in the quality of distance education and developed through an increase in expertise in using distance learning and open education [17]. However, one of the main differences between the new online innovation (MOOCs) and traditional online courses more generally is that MOOCs are available to any learner, and they are under open access agreements, whereas most online courses are not available to learners who are not enrolled at a particular institution [18].

Despite criticisms of the quality of MOOCs, universities have developed and offered these courses. For example, the University of Edinburgh considers MOOCs to be one of its "strategic priorities" to support teaching and learning [19]. In fact, the Heads of eLearning Forum (HeLF) has created a steering group of MOOCs activities in the UK, and there are many universities listed as members of the steering group, as well as more than 140 "nominated Heads" from these institutions who participate in the activities of eLearning and aspire to enhance technologies of learning [20]. However, in reviewing the findings of the steering group, it appears that MOOCs confront both technical and educational challenges. For instance, MOOCs have a limited impact pedagogically due to characteristics, such as the use of short videos, self-evaluation, and absence of "conversational framework," as well as the use of formative assessments [21].

Although the QAA welcomes MOOCs as an advocate for quality in education, it expresses some concerns about the current limitations of these technologies. The auditing process of the QAA does not cover MOOCs, and MOOCs generally do not offer credit. Thus, it can be said that the QAA only reminds students that they must be aware of the importance of accreditation in their certifications [22].

Studies argue that the challenges of MOOCs must be addressed through the development of several approaches to ensure the continuance of MOOCs in higher education. The wide range of eLearning undoubtedly gives the potential for reliability that can reduce the risk of low-quality standards. MOOCs, however, still need to find solutions to other eLearning matters, such as developing assessment, curriculum, learning, and teaching [23, 24].

Woodgate [25], for example, suggests two approaches that help to ensure the quality of MOOCs. The first is "academic course development," which encourages the use of quality templates according to a subject and a team view, including the experiment of platforms. The second is "community and transparency," which focuses on four points: talking to peers and asking for feedback; development of teams—not individuals; encouragement to think about resources beyond MOOC space; and sharing the practice, such as where useful resources are to be found.

Therefore, the primary focus of this chapter is the relationship between technological innovation and QA. Specifically, it aims to determine how QA can be adopted to help develop technological innovation in higher education. Although the literature review indicates that quality management, generally, cannot be separate from

innovation, certain studies have questioned this relationship, suggesting that QA may impede, and the relationship seems to be more complex with regard to technological innovation that is applied in higher education ([11]: [10]).

2. Technological innovation "MOOCs" in higher education

The beginning of MOOCs in higher education led researchers to consider the year 2012 as a "hype year." The Gartner Group also describes MOOCs as a "Hype Cycle," because these new technologies are considered a "technology trigger" on the "slope of enlightenment" [26]. Gore [27] writes that 2012 was in fact "a year of rapid change for education" as a direct result of the "breakthrough" of MOOCs into higher education. Horn and Christensen [28] explore why universities widely adopt MOOCs. The authors believe that despite disruptive innovations initially not looking attractive or prestigious to companies, the leaders of universities realize the importance of "disruption theory," and how to identify the best opportunities. That is, they accept that innovation may involve disruption (as a by-product) and they embrace it anyway. However, subsequent studies try to understand MOOCs more accurately. For example, Langen and Bosch [29] contest the view that MOOCs are "disruptive innovations" in higher education, although they might "disturb the present state." MOOCs, therefore, might be disturbing inventions rather than disruptive innovations. Furthermore, studies prove that MOOCs are not disruptive innovations but rather sustaining innovations that can improve the current higher education market. Flavin [30] indicates that MOOCs do not offer new practical forms of learning and teaching and, therefore, they can be a sustaining innovation in "technology-enhanced learning" that enhances existing online provision (p. 640). Al-Imarah and Shields [31] stress that the current developments of MOOCs are different from the characteristics of disruptive innovation. The disruptive innovation assumptions do not support MOOCs in relation to both performance and benefits, and there is only limited support in relation to the market. However, the literature on MOOCs mainly confirms that the new innovation can enhance campus-based educational programs [19, 23, 30, 31]. It is no surprise that MOOCs will substantially change the conventional ways of delivering higher education.

3. Quality management in higher education

The term quality is of central importance in contemporary global higher education, and the conception of quality sets benchmarks and criteria for teaching, learning, assessment, and research. Quality in the new millennium reflects "the management philosophy" as a result of the increased pressure associated with competition [32]. Quality management in higher education is an "integral part of academic life and will not go away" ([10], p. 556).

Academic literature on higher education identifies different quality management approaches for supporting learning programs in higher education. Studies agree that the main quality management approaches used in higher education are total quality management (TQM) and QA [10]. Although these two approaches use different methods and tools, they both clearly seek to achieve similar aims, such as continuous improvement and supporting students and other stakeholders. However, the focus on QA has increased since 2000 in the academic literature on higher education, while studies in the prior two decades focused on TQM. The work of Hoecht [10] highlights

several characteristics of TQM, which show it does not match the needs of higher education. These characteristics provide some evidence that higher education should adopt a QA approach rather than TQM. Moreover, Jauch and Orwig [33], examine three factors to prove that TQM is inconsistent with the higher education processes. These three factors are continuous improvement, customer focus, and integrated management system, which are explained as follows:

- The continuous improvement element of TQM reduces variability in the transformation process of the product. However, reducing variability in the learning model can be "counterproductive," because students can learn effectively in different ways, and teachers can vary their styles according to the needs of different students.

- The customer aspect of TQM does not match the nature of higher education, because it is difficult to determine who the customers are.

- The principles of TQM consider management as an ideal system with regard to main resources, such as human resources. The principles of TQM also assume that employees willingly share the quality philosophy. In contrast, faculty members of higher education have authority in several areas of the production process, such as the design of the curriculum, research projects, and courses.

Thus, the major focus of this chapter is on QA rather than TQM. QA is a system that consists of interconnected mechanisms that can promote and change higher education [1]. Enders and Westerheijden [34] report on how QA provides several benefits for higher education institutions and the needs of students. They examine the importance of QA in European higher education, where it is considered a tool to "refocus, modernize, and harmonize higher education provision and curricula for the new requirements of international mobility and employability, transparency and accountability, and of strengthening Europe in the competitive world-order." Akalu [35] finds out that QA can be seen through the "academic rigor" and "hard work" that is largely associated with "academic excellence," and maintaining academic standards. It can also be seen through the commitment to knowledge and the recruitment of the best students and the provision of the best learning experiences. Furthermore, the academic literature indicates the importance of the comprehensive process of QA, which ensures rigorous procedures are applied to supporting higher education programs [36]. Therefore, QA develops according to the needs of higher education and offers a very wide scope through its processes, tasks, and diversity of its aspects, which thereby supports higher education.

4. The quality assurance and technological innovation

In higher education, there are also contradictory views about the relationship between innovation and QA. While Mueller and Carter [8] describe TQM as a managerial innovation, Hoecht [10] criticizes the view that quality management promotes innovation in higher education, suggesting quality management may be accompanied by bureaucratic control. Furthermore, QA of eLearning is still a subject of controversy, and studies argue for different quality criteria around eLearning. Indeed, studies confirm that online education still needs much more development of QA [37, 38]. Marcy [11] declares that there has been much debate about the use of

technology in higher education as a result of the development of MOOCs. The quality of new technologies in higher education, in particular MOOCs, could be affected by the limitations of the QA of eLearning. This is because MOOCs, in some cases, still use the same methods as eLearning programs.

Although the academic literature on MOOCs stresses that these innovations serve a number of functions for higher education rather than only the higher education institutions (e.g., marketing, reputation, blended learning, etc.), there is a need to understand why QA is necessary for MOOCs. Firstly, despite skepticism about their contribution, MOOCs are most relevant to the globalization and internationalization of higher education. The massive numbers of students that join MOOCs around the world, and the international higher education institutions that join the MOOC platforms, clearly reflect these dimensions and the need for QA. Secondly, the literature on MOOCs suggests that these courses are able to support higher education by producing hybrid courses that are used to supplement campus-based teaching [39], and may lead to "many positive changes" in higher education ([40], p. 2). Therefore, MOOCs, as a part of higher education, which enhances teaching and learning, should require QA. Thirdly, the literature indicates that academic professionalism seeks to enhance academic pedagogies in higher education [41], and as MOOCs are described as courses "based on [the] pedagogical principles" of higher education [23], one would expect that they reflect these professional values, which, therefore, reflects the need for QA. Fourthly, the literature on higher education proves that institutions adopt QA in support of their missions and goals. MOOCs, in this respect, can support the goals of higher education institutions, including helping students to obtain a competitive advantage in the labor market. As they support the mission of institutions one might expect the involvement of QA. Thus, analyzing MOOCs from the perspectives above suggests that they cannot be a part of higher education teaching and learning program without some involvement of QA processes. The processes and criteria of QA should be offered to MOOCs in the same way as it is to campus-based higher education.

Studies stress that MOOCs are designed for autonomous learning and the current approaches to the QA of MOOCs are still limited [42]. Some advocates of MOOCs have argued that the quality of provision is very high, claiming they "set a higher standard of quality" than campus-based education ([29], p. 224) or that they produce "high-quality products" ([17], p. 403). However, these claims are largely made without empirical evidence, and therefore evaluation of the current quality of MOOCs remains largely speculative. Moreover, Horn and Christensen [28] declare that MOOCs are disruptive innovations that will change quality definitions in the marketplace. For instance, they argue that the rewards of most faculty depend on the quality of their research. However, they believe that MOOCs could offer courses based on employer demand and support the quality of teaching in higher education. The authors, according to their view, see the scope for MOOCs to be much more than "marketing and edutainment" and, therefore, these courses could be developed to be a "scale business."

5. The objectives and scope of study

This study explores whether QA supports or hinders innovation (MOOCs) in the higher education environment. It also explores the QA approaches that can be adopted to improve the quality of technological innovation represented by MOOCs. Thus, the study aims to contribute insights into the relationship between quality management

and innovation. The study also focuses on the pressing need to develop a theoretical framework for technological innovation in higher education.

In social sciences, qualitative research approaches can include both case studies and topical studies. The topical studies focus on activities that are "a less distinctly bounded area," while the case studies focus on "holistic situation in real life of setting, and to have set boundaries of interest," such as particular organizations ([43], p. 99). The case study also suits multiple data collection methods, such as interviews, electronic sources, and documentation. Likewise, case studies can help researchers understand relations of cause and effect, and investigate "the complex dynamic and unfolding interactions of events" ([44], p. 181). Moreover, Scholz and Tletje [45] state that the case study approach is much more appropriate for educational purposes, and it allows for diversity of interpretations. It also suits a situation in which "a new program or discomfort with the current program precedes the need for evaluation," specifically in relation to educational issues. They also advocate the appropriacy of a holistic case study as a qualitative method for evaluating complicated programs where "a case may be treated from different perspectives." The case study approach is appropriate to describe a new phenomenon that has varying characteristics. Also, multiple cases target multiple contexts and complicated problems [45] and generate diverse perspectives on the phenomenon [46].

Therefore, semi-structured interviews with academic staff were the main source of data, and documentation is the second source of data in this study. In order to maintain the anonymity of the five case study institutions, documents are paraphrased rather than quoted directly. Five UK universities were selected for various criteria that may influence the QA of MOOCs. Studies show differences in QA according to the size and age of institutions. The universities that were approached to participate in the study due to their characteristics are: case A: young, small university, England; case B: young, small university, England; case C: old, big university, Wales; case D: old, medium university, England; and case E: older, medium university, Scotland.

6. Design process and quality procedures for MOOCs

The five universities indicated that while they use rigorous procedures of QA for their conventional programs, they do not use similar procedures for MOOCs. The universities provide MOOCs according to the guidance and criteria of MOOCs platforms rather than the approval procedures used in conventional courses. The universities see MOOCs as a new system that has a different style to that which they are used to, and thus they find it difficult to apply the same QA procedures that they use for their conventional courses to MOOCs. However, MOOCs pass through some steps that are already used in conventional academic courses in some universities, such as defining learning outcomes of courses, but the universities indicated that these steps do not follow the same procedures used in their conventional courses. For example, although the central MOOCs team is responsible for checking the quality of MOOCs, the QA procedures are only general and simple procedures (such as checking the text, subtitles, and videos). Other universities believe that the quality of MOOCs, and the improvement of these courses, is basically not their job, but rather the platforms' responsibility. Also, there is no quality guidance that addresses the academic requirements, and that is why the QA procedures for MOOCs are still not rigorous enough.

Furthermore, the approval process for MOOCs at universities is not equivalent to the approval process for conventional courses. For example, the approval process for conventional programs considers the requirements of QA (e.g., breadth and depth of

subject content, engaging students in monitoring and influencing the curriculum … etc.) and it aligns with both the indicators of QAA and the strategy of the university. The universities describe their process of conventional courses as a rigorous process that relies on the appropriateness of standards for the level and title of the degree. The process for conventional courses may differ from one university to another; however, the requirements and steps used to design each course. In contrast, the five universities use similar main steps in the MOOCs' approval process, which seem to be derived from the platforms' guidance. These steps start by choosing the main topic around which to create the courses, followed by designing the content and assessment, the technological design step, and the approval of the courses. **Figure 1** shows the consensus of the universities regarding the main steps in the MOOCs design process.

The majority of universities, however, indicated that the approval process for MOOCs is "lighter" than the process for conventional courses, which is described as a "rigorous" process. In University A, the reason that MOOCs do not need to have a rigorous approval process is that the university does not "make any money out of it."

Also, respondents found the current approach of QA used for conventional processes "too heavy-handed" for MOOCs. Similarly, University B uses "a lightweight program approval form" because, if the process goes through more stages and more phases, then it "potentially would put off people" designing MOOCs. A "very rigorous program approval process" is used for conventional courses at University C, because the university takes into consideration its market position and "what resources students need," while the approval process of MOOCs is "a lot faster" and relies on "a different kind of criteria," because the learners of MOOCs are not the real students of the university. In contrast, Universities D and E have contradictory views on the approval process for MOOCs. On the one hand, the universities indicated that they use "exactly the same" approval process for MOOCs as conventional programs. This is because MOOCs share common considerations such as "accessibility and usability as well as academic rigor," even if they should be looked at through a digital lens. On the other hand, documents from University E indicated different thinking on the features of the
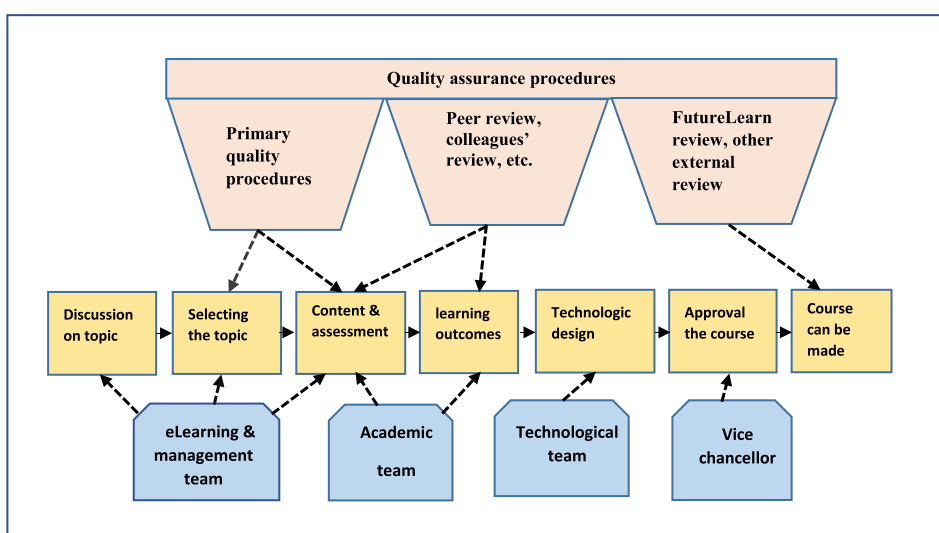
Figure 1.
The main steps of the designing process and quality procedures for MOOCs at the universities.

approval process for MOOCs, indicating that although all MOOCs are reviewed through university course validation channels, the processes of QA are still "lighter" than the quality process for conventional courses. University D also indicated that there is a big difference between the process for MOOCs, which are more orientated to the general public, and the conventional process, which is more relevant to credit-bearing courses, so the process for MOOCs is affected by their aims. There are, therefore, contradictory views on the rigor of the approval process for MOOCs at Universities D and E.

The platforms' review process is described as "quality review" and it is "quite useful" in terms of enhancing the QA of MOOCs. Some of the universities, however, indicate that the platforms' reviews seem to represent the aims of platforms on MOOCs rather than the higher education approaches, such as the focus on videos that can help to support the reputation of the platforms themselves. In this context, University C criticizes the platform's focus on the quality of images, videos, and subtitles, as these are not the same as the kind of academic review that is commonly used in higher education. Therefore, while the universities use the platforms' guidance to enhance the quality of MOOCs, they indicate that these procedures on their own are insufficient. Furthermore, the other universities do not rely only on the platform reviews, but they use additional ways to enhance the external review of MOOCs, even if these are still limited. University A reviews its courses externally, using people with subject knowledge who are not part of them. These external review procedures of the universities precede the platform review in order to make sure that the new MOOCs meet the platform's criteria. The other external reviews are therefore considerable depending on the platforms' instructions that are already criticized by most of the universities.

As a result, the internal QA procedures and the external review applied to MOOCs are derived from the guidance and criteria provided by the MOOCS' platforms. These do not enhance technological innovation enough and do not raise the common level of QA applied to academic courses and programs in higher education institutions.

7. Quality assurance approaches

Studies on higher education argue that there is no ideal model or system of QA that can be relevant to all academic programs [47]. In practice, the majority of universities involved in this study stated that the platform approaches are not sufficient to provide the QA of MOOCs. Also, the universities seek to improve the quality of MOOCs, but they are not convinced of the adequacy of their current procedures. However, the universities recognize different approaches to the enhancement of the quality of MOOCs. Therefore, there are three different views on the QA approaches that should be adopted to improve the quality of MOOCs, which are as follows:

- The traditional approach to QA that is commonly used for conventional courses;

- A new approach to QA designed specifically for MOOCs;

- The QA approach indicated by MOOCs' platforms.

These three approaches differ in processes and procedures, and the preference of universities for the use of these approaches depends not only on the procedures they entail but also on the objectives and purposes of MOOCs at the universities. **Figure 2** illustrates these three approaches and how the universities look at them.
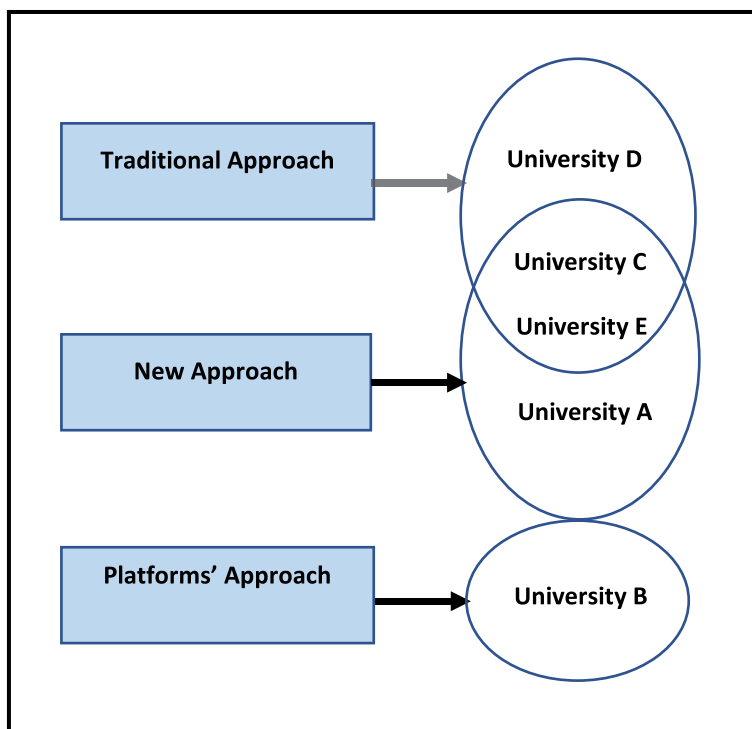
Figure 2.
Suggested approaches for quality assurance of MOOCs.

The first approach (the usual procedures for QA that are commonly applied in higher education) seems to be the option that University D intends to implement. This university believes MOOCs are like other academic programs and should be subject to the same QA criteria as are applied to all their academic courses. The university expects MOOCs to include the same requirements as for courses that are provided in the classroom. MOOCs should therefore pass through the same common QA approach as for academic courses, such as designing content, engagement, accessibility, and student interaction.

The second option is to develop a new approach that can be used specifically with MOOCs. In this context, University A believes that neither the platforms-based quality procedures nor the current approach to QA in UK higher education is appropriate for MOOCs unless they are modified. Even if the requirements are the same, MOOCs have a different process and need less stringent requirements, while the current procedures for QA in higher education are too heavy-handed. In tandem with this, the current quality procedures in the MOOC platforms are not enough to develop MOOCs, despite the fact that University A still provides its courses according to these procedures. The best way to enhance the quality of MOOCs in their view, therefore, is to design new criteria that can take into consideration the characteristics of MOOCs directly. This new approach seems to help in the achievement of different objectives, including the academic purposes that MOOCs can offer.

Thirdly, the platforms-based QA procedures seem to be the only approach that University B uses to develop the quality of MOOCs. The university believes that the platforms' staff have the knowledge of what criteria need to be met for MOOCs to be accepted as appropriate courses for both learners and the higher education institutions

that provide these courses. The university is convinced that the criteria of the platform are enough and cover several areas that MOOCs need, such as the features of content, the time of the course, and the learning requirements. However, the university recognizes that the QA requirements for the academic courses that it offers are much more rigorous than those for the MOOCs. The university, therefore, aims to apply only the platforms' criteria. MOOCs, therefore, only need to clear the current process rather than others, which can be beneficial to achieving its market objectives.

However, both Universities C and E agree that the current approach to QA that is commonly used in higher education can be relevant to MOOCs if that approach is modified. For University C, even if MOOCs have academic features, these are not completely the same as the academic features in conventional higher education programs. To maintain MOOCs as academic programs, therefore, these courses should be subject to one system of QA, and that is why a convergence between the current quality approach in higher education and the specific needs of MOOCs is required. In tandem with this, the evidence from University E on the need for convergence in these approaches is that, on the one hand, MOOCs are similar to the development of online distance learning (e.g., in terms of their processes) and the university already offers many such courses that are subject to the conventional QA approaches. On the other hand, the features of MOOCs cannot be ignored, and thus there needs to be a focus on assuring their accessibility and usability, as well as their academic rigor. The best option to develop the QA of MOOCs at both universities C and E, therefore, is a mix of a new approach to QA embedded within the MOOC requirements and conventional QA approaches. This means that the need for a new approach of QA is lingering, but it must take into account the current approach of QA, blending each with the necessary modifications. MOOCs, therefore, should pass through a new process that considers both the current (traditional) approaches and new approaches that take account of the characteristics of MOOCs.

As a result, the majority of universities involved in the study agree that the current criteria (approach) of the platforms are not enough to enhance the quality of MOOCs. The conventional approach of QA in higher education is still seen as a critical element that should be used to enhance the quality of MOOCs. There is a need, however, to consider the features and characteristics of MOOCs in the QA process. Developing a new quality approach that takes into consideration these features and characteristics as required, and blending the new approach with traditional ones may be more beneficial to the quality of MOOCs.

8. Discussion

Although studies argue that quality management cannot be separate from innovation, some studies have questioned this relationship, suggesting that QA may impede innovation. However, the relationship seems to be more complex concerning technological innovations that are applied in higher education. The analysis does show that there is some flexibility in how QA is envisaged and applied toward MOOCs, but it also shows many more areas in which the approach to QA hinders MOOCs.

The common procedures of QA, such as the approval process, peer review, and external review, offer some support for innovation. The approval process for MOOCs passes through some steps and conditions, including the approval of departments, schools, and vice-chancellors, which are generally similar to the requirements used in conventional courses. Peer review is also used to enhance the quality of MOOCs.

However, the procedures for QA seem to be applied in different ways for MOOCs than for conventional courses. These procedures for MOOCs seem to originate from the guidance of platforms rather than the processes, indicators, and criteria used for other courses. There are, therefore, some quality procedures and support that the platforms offer to MOOCs, but these procedures are limited and do not conform to the methods of QA used in conventional higher education programs. This is partly consistent with the finding of studies that stress that quality management supports and enhances innovation (e.g., [5–7, 48]). However, the findings do not reveal the kind of highly supportive relationship that this literature suggests because it is restricted by the platforms' criteria.

The universities realize that the criteria applied by the platforms are not enough to ensure adequate QA of MOOCs for several reasons. For example, these criteria focus on education for the general public, and the acceptable level of content in these criteria is lower than that usually accepted in higher education. Also, the interaction of students is very low, and the real value of courses is still unknown. The universities, therefore, seek to enhance the quality of MOOCs by using their own procedures, but these QA procedures are still light and are not based on specific criteria, but rather based on MOOCs' staff judgment.

The current procedures applied to MOOCs do not meet "the policies and mechanisms" of internal QA, and "the standards that apply to higher education in general or to the profession or discipline in particular" ([1], p. 34). These procedures do not focus so much on the conventional QA requirements for higher education programs that must respond to the market needs, such as the quality of content and assessment and learning outcomes. Instead, they focus on the quality of images, videos, and subtitles. Therefore, the external reviews on MOOCs do not enhance the quality of MOOCs in the way that studies indicate. It is good practice in the quality process to include rigorous academic procedures for external reviews [36].

Studies stress that the positive or negative relationship between quality management and innovation can be affected by the attributes and environment of organizations and the technologies adopted in institutions [49]. The universities' approach to QA does not appear to be related to reputation or age, although many universities that offer technological innovation are highly reputable institutions. Even if the age and reputation of universities affect their QA, in general, there is no clear evidence that it is a critical attribute in the QA of MOOCs. Thus, these findings contrast with studies that have argued that the age of institutions is correlated with their quality management [50, 51].

Furthermore, the regulator strategy with respect to technological innovation is often unclear on the future of MOOCs and how they can be effective in the higher education sector. MOOCs are provided because they look like a new academic innovation that the universities should be involved with to keep up with other similar institutions. The formulation of MOOCs' strategy, however, seems to reflect the strategy and priorities of individual universities rather than the policies set by the regulator in the higher education system. That is why universities provide varying numbers of MOOCs with significant differences in their budget for them. Therefore, the QA of technological innovation is influenced by universities more than the higher education system.

The QA of content, learning, and assessment are influenced by the characteristics of MOOCs (e.g., the diversity of learners, the level of their background, the short duration of courses, etc.). In this respect, higher education programs require "breadth and depth of subject content" that need to be negotiated between the higher education institutions and individual students and to be consistent with the context of the mission and strategies of the individual universities [52]. The platform's criteria,

however, force universities to design light content (i.e., short videos and easily read text) in their MOOCs, suitable for learners who are not at university, which causes the universities to question the academic rigor of MOOCs. Furthermore, learning through MOOCs is designed for general knowledge that can be covered in the limited duration of the courses. This shortened process of learning does not ensure a high level of learning outcomes. That is why the universities questioned what the overall outcome of the program would be, what sort of interests, what kind of education level, and how learning outcomes can be assessed, etc. Furthermore, the quality of learning essentially develops independent thinking and leads to improved learning outcomes. That is, learning is the heart of education and the quality of courses is defined by providing the best learning process [36, 53]. Thus, the procedures with respect to the learning and learning outcomes of MOOCs were not consistent with the findings of the studies. Even if some universities seek to improve the quality of assessment, they are obliged to offer an assessment based on the MOOCs environment and, therefore, the assessment does not reflect the outcomes and quality of learning and performance, because it is designed for different types of content and learning programs that have different feature and characteristics.

The QA approach used in conventional programs is considered too heavy-handed for MOOCs, and this is the main reason why some universities suggest designing a new approach for MOOCs. Moreover, the aspirations to develop the process of MOOCs, specifically in relation to content, learning, and assessment was a critical reason that led other universities to suggest adopting the common approach of QA. Furthermore, the benefits of MOOCs, in particular, the market benefits, seem to be a major reason to use only the platform criteria to enhance the quality of MOOCs, because these criteria already support the universities to attract students from abroad to join their conventional programs. In this respect, Horn and Christensen [28] indicate that MOOCs can change the "quality definitions" in the marketplace because MOOCs can offer courses based on employer demand. The most accepted quality approach for MOOCs, however, is a combination of the conventional approach to QA in higher education and a new QA approach that takes into consideration the characteristics and features of MOOCs. That is developing a new quality approach is not enough to enhance MOOCs, as long as the universities seek to use technological innovation to enhance their conventional programs. Also, MOOCs can represent a new development in online and distance learning, and they differ from conventional programs only in the depth of the process and requirements, and the need to assure their accessibility and usability. Therefore, the universities seek to maintain rigorous procedures that enhance the quality of all their programs, including MOOCs, to harmonize with the global market needs. This view is consistent with the findings of several studies that the higher education system has been affected by the globalization of QA, and QA is moving toward international standards accepted in cross-border higher education [1, 34, 54].

9. Conclusion

This chapter considered the common concern of QA in higher education institutions. It specifically argues the relationship between QA and technological innovation in the context of MOOCs, that is, whether QA serves to enhance MOOCs or whether it hinders the development of this technological innovation at institutions in the United Kingdom. This chapter, therefore, supports arguments found in the literature that QA may inhibit innovation. The study also highlights the importance and influence

of the characteristics of the innovation on this relationship, because the quality management support can depend on the type of innovation rather than innovations in general [6, 9, 55]. Furthermore, this chapter allows higher education institutions to understand the interplay and integration between their conventional programs and programs using new technologies, represented here by MOOCs.

The characteristics of MOOCs (e.g., the nature of content, assessment and the types of learners) present critical challenges that impede the application of common QA processes and criteria. For example, the nature of MOOCs as technological innovation is the lack of common features of learning, such as face-to-face student discussions and the clarity of learning outcomes. The enhancement of MOOCs quality, therefore, needs to address the characteristics of technological innovation represented by MOOCs. Finally, this chapter might be used to develop a theoretical framework for the QA of technological innovation in higher education.

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Chapter 4

A Transpraxis Approach to Higher Education: A Case Study on Methodological Orientations

Daniel Gutiérrez-Ujaque

Abstract

The critical pedagogy approach opens the door to exploring the Transpraxis Approach (TA) in Higher Education (HE) as a crucial element in promoting social justice through solving social and real problems in the immediate environment. In this study, methodological principles for TA implementation are described. During the academic year 2020–2021, a case study following a participatory action research method was conducted at the University of Lleida to demonstrate how TA can be implemented in the educational methodology of two subjects in two different academic disciplines. A total of 160 students participated: seventy-eight with a bachelor's degree in Social Education and eighty-two with a bachelor's degree in Industrial Engineering. The twenty-seven projects carried out cooperatively by the students were analyzed using content analysis through a system of categories. According to the research, cooperative and experiential learning between university degrees is essential to creating curricular experiences beyond disciplinary boundaries and fragmented knowledge. The paper concludes with ten methodological principles for implementing TA in HE, which present university education as an enabling, collaborative, and critical response to real problems.

Keywords: higher education, critical pedagogy, Transpraxis approach, social work, industrial engineering, innovation

1. Introduction

The COVID-19 pandemic disruptions have shown us that Higher Education institutions need to improve student learning and maintain a modern education for all [1]. Student learning is improved by reforming curricular content that considers students' lifestyles and social and cultural realities by making education more accessible and critical [2]. In addition, institutions should modernize curricula to enhance individual development and collective intelligence, as it will improve students' social and emotional skills [3, 4]. Furthermore, this improvement of institutions must also include modifying their architectural, organizational, and administrative structures to make them more flexible, mutable, and adaptable to the context of a post-industrial society [5]. The reason for this argument lies in transforming the university into an inclusive space consistent with new educational practices. Therefore, improving learning and

constructing modern institutions must respond to a context of uncertainty, change, liquidity, and complexity in the 21st-century culture [6, 7].

A significant current discussion topic concerns how to enhance the quality of HE by eliminating its rigid structure. University education is characterized by reproducing the established order and promoting uncritical individuals under standardized patterns [8]. Reproduction in Higher Education is the result of preserving the foundations of the industrial, functionalist, and control schools of the late 19th and early 20th centuries [9, 10]. As a result, students might be reduced to a body of uninformed individuals and subjected to standardized patterns serving neoliberal ideologies and the market [11]. Therefore, innovative alternative ways to encourage the development of critical thinking and creativity among students while adapting to the circumstances of complexity and uncertainty that characterize our time may be necessary to implement [12].

Understanding the various alternatives to HE indicates that it needs to be rethought based on more inclusive and critical methodological or paradigmatic shifts. As an alternative to rethinking Higher Education, transdisciplinary projects across programs (e.g., between education and engineering) may be an option [13]. Authors such as [14, 15] highlight the need to break down the disciplines between the various grades to promote divergent thinking using curricular content. Also, these authors identify the structure of different initiatives or projects committed to combining different stages of learning as a methodological strategy to improve their training [16]. Corroborating this statement, other researchers such as [17] or [18] reaffirm the gap in implementing projects across programs. Therefore, there is a clear need to generate studies that allow this methodological dimension to be explored in various training contexts.

Rethinking Higher Education also involves the implementation of critical pedagogy. It was the pedagogue Paolo Freire who developed this critical pedagogy approach in the 1970s. He developed a theoretical and practical framework for new liberating practices within educational settings through his struggle against oppression [19]. The main objective of critical pedagogy is to teach students to recognize existing relations of power and privilege instinctively. Furthermore, critical pedagogy aims to analyze the ideologies cultivated within academic institutions that ratify the existence and nature of social and capitalist relations [20]. Lastly, critical pedagogy allows university education to explore ways to create links between people based on equality and justice [21].

This paper explores how transdisciplinary and critical pedagogy can generate new practices in Higher Education that improve students' knowledge and training. So, this study aims to explore and analyze the methodological actions that will establish the basis for implementing transdisciplinary approaches through a critical perspective in Higher Education. Thus, the research approach taken in this study is qualitative, as it aims to determine the methodological principles for implementing the transdisciplinary approach and critical pedagogy in HE. Data for this study were collected using a case study at the University of Lleida (Spain) involving two university degrees (Social Work and Industrial Engineering). The experimental work presented here provides one of the first investigations into incorporating a transdisciplinary approach mixed with critical pedagogy to evidence why Higher Education may need new ways of teaching and organizational changes.

This chapter is structured in four parts. The first part refers to conceptualizing the different disciplinary approaches and emphasizing transdisciplinarity. In turn, the Transpraxis approach is explored as a critical conceptual framework for applying new forms of teaching within HE. Next, the methodology of this research is presented. Specifically, the context, the participants, the educational proposal, the procedure,

and the data collection are detailed. This section ends with the main characteristics that emerged through the categorization of the data. This data categorization shapes the following section based on the results. This section explores the different methodological, interpersonal, and teaching aspects implemented in the experience. Thirdly, the discussion of the results is presented. This section presents the main characteristics that a critical transdisciplinary project can have. Finally, the main conclusions of this research are presented.

2. Literature review

Teaching and training spaces are usually distributed through curriculum standardization and top-down governance [22]. Through this text, we are made aware of how Neoliberalism and mercantilism promote hierarchical disciplinary systems. Consequently, subjects and disciplines that do not contribute to mathematical utility or economic rationality are no longer considered necessary. Additionally, such an approach leads to conceptual and cultural ignorance through taking tests, memorizing information, and the inability to question information [22, 23]. In this context, what can be done to subvert this approach to university teaching and training?

There is a need for educational centers to become spaces for thoughtful reflection, where the societal, historical, and cultural relationships that influence educational practice are visible [24, 25]. The result is the transformation of students into active citizens committed to society [26, 27]. Moreover, students and their contexts should be provided with optimal conditions for critical learning [28]. As educators, we can facilitate learning situations by reflecting upon the social aspects of our professional practices using critical thinking and social reflection [29]. It is also possible to mediate knowledge and situate learning through this approach [30].

Higher Education has evolved knowledge by distributing curricula into specific disciplines, contributing to a deeper understanding of the field. These distinctions, however, have distanced knowledge from an interconnected perspective with other domains of knowledge [31]. According to [32], parceled and quantitative thinking structures lead to blind intelligence. This is because each discipline has become its category of knowledge, defining its linguistic, technical, and sometimes theoretical boundaries. It has been suggested by several authors that disciplines should be "greened" and contextualized by taking into account the cultural and social circumstances in which they are situated [33, 34]. The question is, what approaches were attributed to the disciplines, and which approaches are present in our classrooms today?

2.1 Disciplinary educational approaches

The literature reveals a variety of disciplinary relationships. **Table 1** provides an overview of different approaches to knowledge innovation, and their prefixes indicate the degree of porosity of the discipline. It is common to find them in a great deal of research in education and HE. However, the use of disciplinary, multidisciplinary, and interdisciplinary approaches does not facilitate the creation of a systemic approach consistent with everyday habits and lifestyles [35]. Furthermore, these approaches do not provide a holistic view of the problem. Interdisciplinary approaches are the closest to this concept, although they do not allow knowledge transfer across disciplines. Accordingly, a transdisciplinary approach is advocated by several authors [36–38] as a comprehensive and integral element that enables fields to be "crossed".

Disciplinary approach
Concentrates on a specific issue within a single discipline. Based on theoretical explanations and a positivist perspective, a methodology is developed that removes a single object from its context and rejects its connection to other elements.
Multidisciplinary approach
As a result of focusing on a common problem, several disciplines are considered. As each discipline intervenes for a different purpose, it is pertinent to consider that the objectives differ between disciplines. Consequently, it is possible to define the conclusions of such an approach separately.
Interdisciplinary approach
It is intended to investigate development problems with and from disciplines that share a common goal and problem. The research process involves all disciplines. Consequently, it enables cooperation between various disciplines, thus allowing bridges to be constructed between them.
Transdisciplinary approach
The project's scope extends beyond typical disciplinary boundaries and the fragmentation of knowledge. The solution to societal problems is based on a holistic, integral, systematic, and ontological approach.
Note. *Own elaboration.*

Table 1.
Disciplinary approaches.

2.2 Transdisciplinary approach

The prefix 'trans' indicates that a transdisciplinary approach extends beyond the discipline. There have been a variety of interpretations of the concept by different disciplines. As a result, different fields have coined this concept. This approach gives it a specific meaning and defines the term as a novel approach to creating knowledge through empirical, interpretive, and critical means [39]. Transdisciplinarity must be based on complexity and a holistic perspective to transcend mono, multi, pluri, and interdisciplinarity. Therefore, this systemic approach considers the social, cultural, and political contexts [40]. Following **Table 2**, transdisciplinary knowledge is based on three axioms.

Transdisciplinary praxis can be defined by these three [41]. Transdisciplinary praxis is defined as 1) situations where dialectical participation is a commitment, 2) experiences that allow moving beyond comfort zones through multiple perspectives, 3) investigating in formal and informal contexts, 4) valuing complexity as a factor that enhances relationships, 5) being humble and reflective, and 6) promoting collective action based on community and critique of power. As a result, this praxis concretizes transdisciplinary initiatives between society, organizations, citizens, and universities [42]. Additionally, the horizontal concretion of these elements enables the implementation of educational proposals consistent with social evolution, integrating knowledge and action in the same manner [43, 44]. According to [45], Transpraxis strengthens the concept of transdisciplinary praxis and emphasizes the reflexivity of educational approaches. [46] reflexivity is a critical self-evaluation of each individual in a particular situation [47]. Reflection differs from this in that it places the person reflecting outside of the process of reflection. Therefore, reflexivity enables us to develop strategies for questioning our actions, thoughts, and values [48]. The use of a transdisciplinary approach combines all the qualities necessary for critical training and education, which allows us to establish points of connection with critical pedagogy.

Ontological axiom
In essence, it involves recognizing that reality is composed of several levels interacting with one another (externally and internally).
Logical axiom
This axiom reconciles contradictions, and different forms of knowledge are integrated into new knowledge, utilizing tertiary logic.
Epistemological axiom
As a result, knowledge is viewed as an emergent, embodied, and always-in-flux phenomenon.
Note. *Own elaboration.*

Table 2.
Axioms of the transdisciplinary approach.

2.3 Transpraxis approach (TA)

As a conceptual current, the Transpraxis Approach is closely related to critical pedagogy in that both aim to develop attitudes that support social justice, equality, freedom, and the rights of individuals [49]. Furthermore, it allows for the definition of professional practices that create a dynamic, fluid, and change-oriented society [50]. Consequently, such practices must foster a critical and liberating consciousness [51] capable of subverting dominant approaches and exploring education from a horizontal and egalitarian standpoint. Only its transdisciplinary character allows such a response, given its practical, reflexive, and non-binary nature [52]. A critical pedagogy employs the transdisciplinary perspective to transform the school into an agent of social change for the community. Thus, rhizomatic experiences can be generated for teachers and students due to this multidimensional structure of reality [53]. Additionally, it provides them with an opportunity to contribute to the solution of problems in complex social situations. It is possible to achieve such solutions by engaging in collaborative, creative, and inter-active thinking [54]. Therefore, as [55] states, understanding the world requires more than memorizing knowledge, but rather the quality of one's ethical and moral relationships with others.

Critical pedagogy and Transpraxis share a relationship. It is because both aim to help students establish relationships with the environment and themselves and provide them with a holistic vision relevant to their daily lives. Therefore, both theories interpret knowledge as global and connected to learners' everyday lives [56]. Consequently, students are active participants in the learning process and can solve real problems in their everyday lives [57]. In turn, connecting with their environments deconstructs dominant discourses and empowers social reconstruction to achieve social justice. Teachers are also encouraged to develop dialogical educational situations based on different knowledge and understandings of critical pedagogy and the Transpraxis Approach. Furthermore, they seek to create training experiences that can situate learning in and for communities to ensure that a teacher is connected to the community [58]. As a result, both approaches conceptualize learning as an emancipatory and humanizing process.

According to a literature review, transdisciplinary educational practices are lacking among university programs in diverse fields of knowledge. As a result of these

educational practices, critical pedagogy and ethical and responsible learning methods were promoted. As a result, the study's main objective is to describe the methodological principles for implementing the Transpraxis Approach (TA) in Higher Education (HE). A specific set of objectives is proposed to accomplish this: 1) Designing the methodology for HE subjects based on TA; 2) Analyzing the implementation of TA in HE subjects; 3) Determining the methodological principles for the implementation of TA in HE.

3. Method

The methodology of TA-based assignments in HE is designed and implemented through participatory action research to provide a basis for subsequent analysis. Additionally, researchers take on the role of teachers, continuously analyzing and reflecting on what occurs through direct contact with students.

3.1 Context and participants

According to **Table 3**, during the 2020–2021 academic year, a case study was conducted at the University of Lleida in two curriculums: a) "Geography and History," part of the Degree in Social Education; b) "Industrial Automation," part of the Degree in Industrial Engineering (Electronics and Mechanical).

In total, 160 students participated during their second academic year—78 students from the Social Education program and 82 from the Industrial Engineering program. Regarding the Social Education students, 80% identified themselves as females and 20% as males. They ranged in age from 19 to 25 years of age. Most of the participants were of European origin and, specifically, of Spanish nationality. There were 95% male and 5% female engineers in the engineering group. In terms of age, they ranged from 19 to 40. All students were of European descent, despite their different nationalities, including two students from Italy, one from Macedonia, and one from Ireland.

3.2 Educational proposal

Based on a literature review conducted between 2016 and 2018, the subject methodology was designed to follow the critical elements of [47, 48] as shown in the following characteristics:

Subject	Geography and History (GeH)	Industrial Automation (IA)
Grade	Social Education	Industrial Engineering
Curse	2nd	2nd
Type	Compulsory	Compulsory
Credits	8 ECTS	8 ECTS
Semester	2nd	2nd
Students	78	82
Total	160	

Note. *Own elaboration.*

Table 3.
Characteristics of the subjects and participants.

- Co-production of knowledge through projects

Establishing groups with a maximum of six members and a 50:50 balance between the two degrees for the collaborative production of knowledge [59, 60].

- Significant learning

The project aims to develop proposals for social and technological solutions to transform the city's historical center into a space for inclusion within the university's municipality [61].

- Experiential methodology

Sensory ethnography [62] analyzes social, cultural, bodily, and sensory discourses within urban spaces [63]. This technique aims to have students interview citizens to gather information about real issues. The students' projects were aligned with the SDGs (Sustainable Development Goals) [64].

- Linking practice with theory

Key aspects include technological innovations with critical social benefits and the analysis of changes in space and time, together with how the population perceives these changes [65] in the project's development.

- The role of the teacher as a "guide"

The teacher's job is to create the learning conditions so that the students' experiences are at the heart of the learning process [66].

- Dialogic spaces

Discussion sessions are proposed among all students on the conception of solutions to promote an inclusive city and how technological innovations contribute toward an inclusive city [50].

- Critical perspective

The artist and activist Daniel Andújar will participate as a catalyst to question the status quo of the students' projects, providing a more critical vision through his artistic works based on social criticism and inequality in the information society.

- Interactive process

It is intended that the creation of the project is not linear but that the experiences contribute to its development and continuous improvement in all its theoretical and practical aspects in a cyclical way between teachers and students.

3.3 Procedure

Students and teachers of both subjects met weekly for one hour in the classroom to discuss both subjects during the fifteen weeks of teaching in the second term of the 2020–2021 academic year. A further twelve hours of autonomous work were allocated to each group to finalize the proposal or investigate their project. The three teachers who participated in the research did so voluntarily. Social Education and Industrial Engineering students signed the authorization form in which they consented to participate in the joint project and allowed their data to be used anonymously.

Figure 1.
Message found and snapshots during sensory ethnography.

3.4 Data collection instrument

A data collection instrument was developed from the student projects and their related written work. In this written document, there were six parts: 1) Approach to the problem, 2) Design of the intervention, 3) Implementation of the intervention, 4) Results and reflections on the intervention, 5) Conclusions, and 6) References. In addition, as shown in **Figure 1**, these papers included the intervention proposal, describing how the trans-disciplinary projects had been developed through sensory ethnography [67].

As discussed in the section on the characteristics of the subjects, sensory ethnography allowed the exploration of urban environments. As a result, it was possible to identify which issues could be addressed from a social and technical standpoint. The research included 27 projects in total (see **Table 4**). The connection between projects and SDGs is based on two perspectives: SDGs created by citizens who will benefit from a project and SDGs incorporated into the project during its development.

Project	Thematic	The proposal and SDGs involved
1, 3, 19, 24	Leisure areas	Create leisure spaces in the historic center to enhance the social relations of the people there.
7, 8, 13, 26	Domotics	Installation of sensors in different urban facilities to improve the way of life of the people living in these spaces
11, 12	Parking	Manage and provide parking spaces in the historic city center.
4, 17, 23	Urban lighting	Install light and presence sensor lighting in poorly lit streets and urban spaces in the city.
2, 6, 14, 25	Sustainable energies	Improve the energy efficiency of dwellings and other public or private spaces of the historic city center.
5, 6, 9, 15, 16	Attention to diversity	Create technological facilities in public spaces that enable the inclusion of all people.
18, 21, 22	Software applications	Design of applications to manage and improve social communication in public and private spaces
10, 20, 27	Recycling	Installation of recycling mechanisms in public spaces with low environmental impact and economic cost.

Table 4.
Characteristics of the subjects and participants.

3.5 Data collection instrument

Based on the steps shown in **Figure 2**, we used content analysis for analyzing student work.

Based on the written projects generated by the students, the data analysis provides a wealth of qualitative - narrative - information showing both the positive and negative aspects of their experiences. According to [50, 67, 68] study of transdisciplinarity and transpraxis, we could extract dimensions consistent with lived experiences and improve the categorization of the data. [69] have identified categories in the results through a reflective critique of the validity of the instruments. Below is a **Table 5** that illustrates the categorization system used.
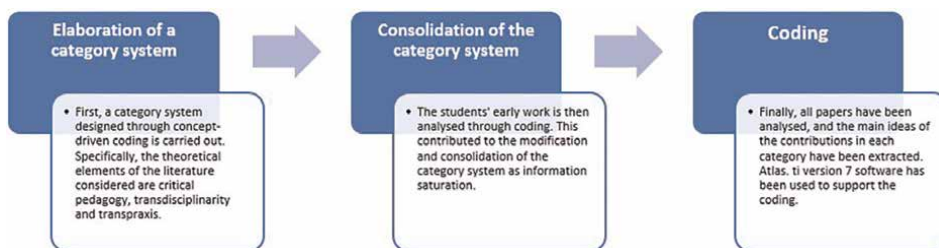
Figure 2.
Content analysis process.

Dimension	Category	Definition
Methodological aspects	Deconstructing discourses	It reveals and examines the discourses of power embedded in everyday practices in society.
	Revealing truths	It is making visible social minorities and approaches that exclude vulnerable people based on race, gender, sexuality or culture.
	Interaction during the process	Complex problem-solving is understood as changing, provisional, and movable elements. Therefore, so is their process.
Interpersonal aspects	Reflexivity approach	Becoming aware of and proposing questions based on a person's internal positioning while interacting with another person influences the experience's process and outcome.
	Deconstruction of binaries	It deconstructs the binary components that exist in society, to society, in order to intermingle them to define an inclusive space.
Teaching aspects	Dialogic communication	They are attentive to people's dialogs, regardless of their differences, recognizing and generating open, flexible, and inclusive forms of communication.
	Transcendent spaces of transformation	They are designing spaces of power resistance, reflection, and reflexivity in the experiences that are identified in everyday life.

Note. *Own elaboration based on [50].*

Table 5.
Characteristics of the subjects and participants.

4. Results

The results are presented in **Table 5** according to the category system. The students are not identified for ethical reasons but rather for the projects to which the quotations pertain. This section presents written transcripts of the physical projects and corresponds to a verbatim copy with possible grammatical errors.

4.1 Methodological aspects

Based on the results concerning the methodological aspect, it is evident that the students are aware of the connection between their professional practice and what happens on the streets. The 27 projects demonstrate the importance of deconstructing dominant discourses in society.

> *It is common for us to focus on the product rather than the discourses behind the product. As engineers, we should, however, consider the people who will be using the product, and because of the social gaze, we are now more aware of the discourses of power in society.*

> *The purpose of this project was to allow both grades to break out of their routines. As a result, they can develop their creative abilities and apply what they have learned.*

The results demonstrate how the participation of artist Daniel Andújar enhanced the deconstruction of discourses. It is evident from the results that his works have contributed to the reflection of social minorities and excluded groups. As a result of the projects, the university is not engaging in formative practices that reveal marginality and exclusion.

> *We became aware of how our upbringing influenced our view of society. We were forced to rethink our understanding of urban space after seeing Andujar's work and realizing that elements were invisible to us.*

> *Marginality, Social exclusion or Segregation. These terms were studied in the classroom, but this is the first time we have encountered them during training. As a result of Andujar's look and experience, we became aware of how hypocritical we can be with other members of society at times.*

This section demonstrates how the students' experience revealed that the project was not rigid and static but changed over time as their research progressed. Furthermore, the results show how the SDGs have made such transformations possible for students.

> *We have to reflect on our reality because of the SDGs. Our practices and approaches emerged as we discovered projects related to the SDGs.*

> *Our research used the SDG approach extensively because it helped us tackle real-life issues. As a result, the project was alive because the problems were alive.*

These results demonstrate a correlation between the arguments expressed by the students and other faculty members. Specifically, it illustrates that students perceive the university as a linear space, disconnected from reality. The challenge of this approach provided the opportunity for a change of perspective.

> *At university, we are used to solving cases on paper and in papers that do not make sense to us. These projects are being developed for the first time based on our experiences and realities in social and cultural contexts. We believe this is very significant.*

> *Our engineers are responsible for taking a realistic view of society and starting with reality. There is a strong presence of this approach in this project; therefore, it makes sense to apply it. It would benefit the university to have more projects of this nature.*

The following extracts from the written documents illustrate the main results of the methodological aspects of training, which were reflected in the results of the interpersonal aspects.

4.2 Interpersonal aspects

An essential aspect of interpersonal aspects is how this research project engaged two universities with different knowledge fields to collaborate on a single project. As a result of this approach, the students' prejudices and stereotypes about the other degree and the students taking it were broken down.

> *The first impression of the other degree was very damaging because we did not find any relation between social educators and engineering, as they are opposite careers. This adverse reaction was caused by the prejudices that exist in society.*

> *Collaborative work has been vital in this process. In the beginning, it was not very easy, as we thought it would not work because of the differences. However, finally, we realized that we must work collaboratively and understand all perspectives as professionals.*

It is evident from the written fragments that students deconstructed the fragmentation of disciplines that affected their understanding of the university. This was done to break away from the academic fragmentation of the curriculum. The following example illustrates this situation.

> *It is incredibly enlightening that the university uses a methodology that combines different disciplines; this teaches us that we should not work separately but collaboratively without prejudices or stereotypes.*

It is also significant to note that this aspect facilitates students' ability to reflect on their learning experiences. As students in both grades worked on deconstructing binary aspects, they demonstrated reflexivity. It is narrated in the following manner:

> *The experience has been gratifying, as it has provided us with different knowledge and points of view. Furthermore, this experience has made us realize that there is not just one truth but that we can create new things with these unions.*

> *We consider that the proposal shows us how we will need the collaboration of different professionals to carry out specific projects in the future. Therefore, this experience will be essential to respect and broaden our vision and knowledge.*

In the selected fragments, stereotypes and prejudices about their peers are deconstructed. Additionally, this resulted in self-criticism of their social and personal positions. As a result, these lively interactions impacted the workshop's methodological, interpersonal, and teaching aspects.

4.3 Teaching aspects

These results demonstrate the relevance of defining dialogic teaching as active listening and criticizing traditional university curricula. This result, in turn, led to self-criticism on the part of the students of both degrees.

> *As a result of these projects, we believe we are engaged in learning. Furthermore, as future professionals in this liquid society, all of us must have the opportunity to learn from everyday life and real-life experiences.*
>
> *Our project reflects on how the university operates within a Neoliberal framework in many instances. Therefore, it is impossible to overstate the importance of training and learning.*

As a result, the joint project has been influenced by the social and historical contexts. It is evident from these results that curriculum content should be linked to these contexts. In addition, this situation shows how one of the project's competencies has been social responsibility and civic engagement.

> *Linking our project with what we experienced in the space made us come up with a more coherent and inclusive proposal. In addition, we have gotten to know the realities around us.*
>
> *We have learned from the territory and the city for the first time. We have related curricular content to the realities that people live in their territories.*

As the students explain, culture and heritage play an essential role in education. Moreover, the students describe how the classroom should be a place of fundamental transformation, in which students can leave behind their experiences of memorizing and replicating industrial systems.

> *We have been able to work on the contents of these two subjects in a very dynamic, lively, and enriching manner as a result of the joint project. At the university, proposals are generated that goes beyond the traditional because the traditional does not work.*
>
> *This project has allowed us to understand how university education needs a change in the learning process, as these experiences make us think and go beyond.*

These examples demonstrate the importance of promoting university training that creates transformational learning environments. Here is an example of one of the transformation projects that aimed to generate self-sustaining modules for seasonal workers in the city of Lleida. As shown in **Figure 1**, these students also conducted sensory ethnography in the historic center of Lleida, exploring the streets and finding this message: "Shelter for seasonal workers, now!"

Based on this message from the historic city center, the students developed a proposal to provide sustainable and easy-to-maintain spaces for people who do not have access to housing for various reasons. As a result of approaching this social issue from a transdisciplinary perspective, this group gained a thorough understanding of subsidy legislation. Furthermore, they proposed how it should be implemented in the city. As a result, the opportunity to work closely with Daniel Andujar on sensory ethnography became a reality. According to the members of this group, the approach is as follows:

> *We had done the sensory ethnography, and the street told us it wanted to. From there, we decided to carry out this proposal; we thought about institutional power and the power relations that it generates. The street itself showed us a reality ignored by the organs of power.*

As a result of research conducted by the two training groups, social educators and industrial engineers, the following proposal has been developed for the generation of temporary worker housing spaces in Lleida, in which different sensors are installed to enable the modules to be self-sufficient. The modules consist of a kitchen, a dining room, a laundry room, three bedrooms, and two bathrooms. The students developed a prototype of a self-sustaining facility based on the social needs they identified during their ethnographic research. A vital goal of this approach was to ensure one of the principles of the Universal Declaration of Human Rights: everyone has a right to well-being, including access to food, shelter, health care, clothing, and other essential social services. The emergency caused by Covid-19 has exacerbated the situation in Lleida's historic center. In addition, the fruit-picking campaign has exacerbated the problem of day laborers in the city, which is already recurrent. These workers often slept on the streets or were housed in tiny, poorly ventilated apartments. The extreme situation experienced during the pandemic is also an indication of social rejection and exclusion. The lack of coherent social policies and structures highlights the students' good reading of the city's problems.

This project illustrates an intervention in HE made possible through community involvement and the involvement of individuals who contribute to everyday life. Based on the study results, it is evident that higher education needs to rethink its methodological, interpersonal, and teaching aspects critically. From a critical perspective, this entails defining a Transpraxis Approach that is consistent with the evolution of society.

5. Discussion and conclusions

Using the research findings, it has been possible to describe which methodological aspects should be considered when designing an educational proposal in higher education. This is due to the teaching assistant. These methodological aspects have been delineated through principles by analyzing the content of joint projects involving students from different disciplines.

On the methodological front, joint projects have played a significant role in developing the TA to promote relevant professional practice in each degree through exchanging and disseminating knowledge between the two disciplines. According to the EHEA, this approach corresponds to specific and transversal competencies [70]. One of the objectives of this research included the ability to identify, pose, and solve problems in real-world situations. Using sensory ethnography, students identified and provided solutions to urban social problems. They deconstructed different social and dominant discourses, betting on real projects rooted in their communities [71] and realizing situated learning [72, 73]. In turn, the work with the artist Daniel Andújar and SDG emphasized critical thinking about the lived reality of the historic center and its community [74].

It is evident that the importance of exploring collaborative work in university education cannot be overstated [75]. Therefore, students can identify self-criticisms of their processes and analyze their positions regarding other degrees, creating a sense of re-flexibility. Additionally, the various excerpts emphasize the importance of collaboration between different grades to exchange knowledge across disciplines. As a

result, learning can be democratized [76], and various social boundaries can be deconstructed. Therefore, it is not significant where the discipline comes from, but rather understanding differences to propose educational practices that contribute novel knowledge and methodologies to university education.

In teaching, working with sensory ethnography enabled students to relate the research to their everyday lives. By examining the fragments, it was easier to see how the curricular content was shaped by the experience of living in the territory and the historical context. As a result of understanding the context's social relations, they gained a more comprehensive understanding of the power relations experienced in these spaces (gentrification, regeneration, or social exclusion). As a result of these observations, it was possible to investigate the competency of engagement with the socio-cultural environment within university education. It is possible to understand teaching as a space that fosters critical thinking and social responsibility using a teaching model based on dialogical communication.

As a result of these findings, the inclusion of content from practice and personal experience is further supported. Students approached their projects with an awareness of the potential impact they might have on the everyday lives of those living in the historic center. This was because they brought their subjects closer to the lived realities of the historic center. Nevertheless, the results demonstrate the importance of working within a heritage context. As a result, we can define real projects that align with society's needs today. It is possible that dealing with the heritage context results in more open and enabling situations. It is connected to the way of life of the residents of these areas.

Based on this combination of findings, it appears that HE should be transformed into a space for debate, critical knowledge production, and the connection of training to relevant social issues. Accordingly, based on the research objectives and the analysis of the main results, ten principles are outlined as a dialog representing an interpretation of the data. Using critical pedagogy in HE, the Transpraxis Approach is built on the following principles to implement a transdisciplinary methodology.

1. Start from a specific problem, issue, or situation rather than from a discipline or area of knowledge.

2. Determine the problem to be solved to determine the diagnosis, research methods and strategies for action.

3. Identify the main dimensions of the problem by creating an order of priority.

4. Find out who are the people interested or affected by the problem or situation you want to address.

5. Convene stakeholders to be part of the research group from the beginning.

6. Establish relationships or connections between existing dimensions of the problem.

7. Analyze the effects of each of the dimensions of the problem.

8. Establish the connections between the various effects and dimensions of the problem.

9. Agree on the priorities of the work, the timetable, and the responsibilities of each of the research participants.

10. Propose solutions based on networking in order to continue researching and improving.

This self-developed decalogue has been developed based on the experience gained during this project. However, these findings cannot be generalized, and the case study may limit their applicability. Therefore, it is necessary to conduct further research in order to gain a complete understanding of the role of teaching assistants in university education. Consequently, this research will continue during the academic year 2022–2023 by proposing a Transpraxis Approach between the Degrees in Primary Education and Digital Design and Digital Technology at the University of Lleida. Through this continuation, these principles can be verified. By doing so, we can transform university centers into learning environments. These centers will be critical of society and in harmony with the way of life of its citizens.

Higher Education has not explored a novel conceptual and practical framework due to this research. Instead, this study illustrates the importance of using critical pedagogy conceptual frameworks to implement the Transpraxis Approach. As well as offering innovation in curricular understanding, it commits to a view that moves away from mercantilist concepts that are disconnected from current reality. Therefore, this research provides a window into understanding university education as an enabling and transdisciplinary element that responds critically and inclusively to real-world issues.

Conflict of interest

The author declares no conflict of interest.

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Chapter 5

Perspective Chapter: Integration of Science and Islamic Teachings by the PPI-Unas to Fight Environmental Degradation

Kafil Abdillah, Oscar Efendy and Nonon Saribanon

Abstract

This study investigates the intellectual endeavor to revive Islamic tradition and thoughts on nature conservation by using scientific narration and reasoning. The intellectual exercise, which is made by the Center for Islamic Studies Universitas Nasional (PPI-Unas), Jakarta that leads to various actions on nature conservation, from protecting the forest and endangered wildlife from poaching, preventing forest fire, and reducing CO_2 emission to fighting climate change. The temporary result of these efforts to integrate Islamic teaching and sciences is then translated into 42 social and environmental projects and has been drawing support at home and overseas, academic circles, research institutions, donors, and NGOs. The obvious indication of international support is the accreditation of the PPI-Unas by the United Nations Environment Program (UNEP). Conclusion: At the practical level, modern sciences and Islamic teaching on nature conservation are complementing each other.

Keywords: Islamic teaching, conservation, integration, PPI-Unas, science

1. Introduction

In today's world, when natural degradation is seemingly an unstoppable process of degradation, various groups, local, national, and international, take part in the global fight to prevent the earth from further deterioration. Among the cause for concern is the uncertain climate shifts. The world temperature continues to rise over the last four decades [1]. Indeed, global warming and climate change have become the concern of mankind.

The established facts paint a bleak picture: 99% of people worldwide do not breathe clean air, according to World Health Organization (WHO)'s latest data [2].

But an even more serious concern is for tropical countries, such as Indonesia. Scientists worry about developing nations in tropical regions that, in their attempt to catch up with the developed nations' standard of living, move from agrarian societies to urban manufacturing-based societies, marred with villagers migrating to cities that cause overpopulation, slum areas, and sanitation problems [3].

Several scientists have demonstrated that global air pollution exposure in the perinatal period is a risk factor for autism spectrum disorder (ASD) in newborns. While the main cause is under investigation, but air pollution is believed to be one of the contributing factors [4].

Babara A. Maher and friends identify the abundant presence in the human brain of magnetite nanoparticles that match precisely the high-temperature magnetite nanospheres, formed by combustion and friction-derived heating, which are prolific in the urban environment [5].

A joint study by the World Bank and the Institute for Health Metrics and Evaluation (IHME) discovered that an estimated 5.5 million lives were lost in 2013 to diseases associated with outdoor and household air pollution, causing human suffering and reducing economic development [6].

To this global problem, there is a public opinion that while religious followers make up the majority of the world population, they have less concern with the degrading planet they live in, or, to say the least, they lack action on this issue.

Mary Evelyn Tucker, a senior lecturer at the Yale School of Environment, wrote in her book *Worldly Wonder: Religions Enter their Ecological Phase* that 88% of the world's population are faithful believers. This makes religions a gigantic power to save the planet if they work together [7].

On July 2009, more than 50 Muslim scholars from around the world announced what they called the Muslim 7-Year Action Plan against climate change, after a two-day intensive discussion and deliberation in Istanbul, Turkey.

The plan includes proposals for developing the major Muslim cities as a green city model, environmentally friendly goods and services, and sustainable practices of Islamic businesses. The Islamic trust fund called *waqf* will be established to make this plan into reality.

Today, there is a need to limit global warming to 1.5°C by the end of the century, which means halving annual greenhouse gas emissions by 2030. Still, global warming is likely to exceed 1.5°C in the next two decades. Methane, the primary component of natural gas, is responsible for more than 25% of the warming, we are experiencing today [8].

It becomes obvious that climate change causes extreme weather events that kill or displace thousands and result in economic losses measured in the trillions. This situation entails investments in renewable energy as a main step to reduce global carbon emission [9].

According to UNEP, ecosystem degradation affects the well-being of an estimated 3.2 billion people or 40% of the world's population [10]. The degradation will continue if there was no measure to prevent the process. And so, there is a need to restore at least 15% of the converted lands, while stopping the further conversion of lands and its ecosystem.

In 1960s, forest covered around 80% of Indonesian lands—the third largest forest in the world after Brazil and Congo. But since then, the forest cover has been steadily on decline and the country is known to undergo the fastest deforestation rate in the world. In 1990s, the country's forest area shrink to 114 million hectares. And a decade later, it further dwindled to 90 million hectares [11].

From 2000 until now, more and more Indonesia's forest area is converted to oil palm plantations, after it was logged excessively by a number of forest concessionaires. Between 2000 and 2015, nearly 1.6 million hectares and 1.5 million hectares of primary forests were converted to oil palm and wood fiber plantations, respectively [12].

Indonesian forest includes more than 24 million hectares of peatlands, which store about 35 billion tons of carbon. When these peatlands are drained, burned, and replaced by plantations, it releases thousands of tons of carbon dioxide and sets the stage for devastating forest fires. The country is still among the world's top emitters of CO_2 along with the U.S., European Union, China, India, Russia, and Japan, with 85% of its emissions profile coming from rainforest and peatland degradation and loss [13].

The uncontrollable forest conversion has led to a huge loss of biodiversity and brought a number of valuable trees variety and animal species to near extinction. The population of unique species, such as Javan eagle, orangutan, and Sumatran tiger, continues to decrease and now is close to extinction. Quoting the International Union for Conservation of Nature and Natural Resources (IUCN), 15,000 species of animal and trees will extinct within the next 15 years [14].

Indonesia has actually been making serious efforts to fight its ecological degradation by ratifying international conventions on the environment since the Stockholm Convention in 1972, Earth Summit in Rio de Janeiro, Brazil, in 1992, Paris Agreement (2015) to the UN Framework Convention on Climate Change, to Stockhom+50 in Sweden, in 2022.

Among Indonesia's important policies are the establishment of the Ministry of Environment and the BKSDA, Indonesian acronym for Natural Resources Conservation Body under the Forestry Ministry. As part of these policies' implementation, the Forestry Ministry has designated 50 national parks as the country's conservation areas.

During the period of 2012–2022, in light of Stockhom+50, Indonesia has issued Regulation No 16 Year 2016, which adopts the Paris Agreement to the UN Framework Convention on Climate Change, and Regulation No 11 that ratified the Minamata Convention on Mercury, which is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.

2. Islam on the environment

The Islamic scripture Quran has its own narration about environmental degradation and what causes it:

> *Corruption has spread on land and sea as a result of what people's hands have done,*
> *so that Allah may cause them to taste ⸢the consequences of⸣ some of their deeds and*
> *perhaps they might return ⸢to the Right Path⸣. (Quran 30:41).*

So, environmental degradation according to the Quran is caused by human action. That is why the Quran brings a set of regulations and ethics to govern human action. The main message of the Islamic scripture is for human to submit their desires and action to Allah's will.

Prophet Muhammad PBUH said that his main duty is to excel in the human code of conduct, called *akhlaq*, which is a set of values that guide how humans behave in interaction with God, human fellows, and nature. Prophet always encourages Muslims to live modestly and stay away from excessive behavior. He himself is an example of modesty, self-control, and affection to humans and nature. And he said: "I was sent to perfect moral." (Hadits narrated by Al-Baihaqi).

Allah said in the Quran that he created a human being and give them a mission as *khalifa fil ardh*, which literally means vicegerent on earth. It gives the meaning of steward and custodian of earth. A human being is given such a heavy mission because Allah equips him with intelligence, a discrete faculty that gives him the ability to think, reflect, and have free will.

The Quran also explains that life springs forth from the water, making it essential to all living creatures. "*We made from water every living thing*" (Q.S. 21:30). The water of rain, rivers, and fountains runs through the pages of the Quran to symbolize God's benevolence: "*He sends down saving rain for them when they have lost all hope and spreads abroad His mercy*." (Q.S. 25:48).

Prophet Muhammad PBUH said that one-day people will wage war over rivers of gold, indicating the vital role of water. On several occasions, he denounced the inefficient use of water by his followers. He even allowed used water to be used for *wudhu* (ablusion).

Prophet Muhammad likes planting trees and always encourages his companions to do it. He said, "Whoever plants a tree and diligently looks after it until it matures and bears fruit is rewarded" (Source: *Musnad*). Planting tree is a form of *sadaqah jariyah* (continued charity). When someone plants a tree, and a human being or an animal takes shelter under it or fetches and eats a fruit it produces, then he or she gets rewards that do not last even after his or her death.

2.1 Hima'

Prophet Muhammad PBUH assigned an area near Madina where hunting, tree cutting, and land conversion are not allowed. This assignment is for conservation purposes. The assigned land is called *Hima al-Naqi*. Hunting is forbidden within a four-mile radius and tree cutting and destruction within a 12-mile radius. The caliphs who succeeded him established additional *himā*-s for the cavalry, the camels allocated for charity, and the livestock of the poor.

Later, the second Caliph Omar ibn Khattab built Hima al-Syaraf and Hima al-Rabdah. His successor Caliph Othman ibn Affan then extended the hima, so that it was capable of harboring at least one thousand animals every year [15].

Hima' is actually part of the Arab tradition since before Islam, which then functioned more as a private reserve for chieftains, who usually used it for personal or tribal pleasures. Islam changed its function to became public property. Tribes had their own *himā*-s with the permission of the state and acted as self-government in the absence of state control.[1]

2.2 Harim

The word *harim* is another form of the word *haram*, which means inviolate zone that includes sanctuaries or places where contending parties could settle disputes peacefully. Towns were usually built near rivers in order to get sufficient water supplies. The *harims* were built to restrict urban sprawl, protect water courses, watersheds, and oases.

The *harim* scheme was introduced by Prophet Muhammad in the Arabian peninsula in the seventh century to protect river and water resources, which were fundamental for Muslim ablution from pollution and damage. The *harim* area for a river

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[1] Ibid.

extends to half of the river's width on both sides and for a tree extends from the tree to a radius of two-and-a-half to three meters. There is also a forbidden zone for wells or water sources that can extend to a 20-meter radius.[2]

Harim is part of the *hima'*, which is a system of resource tenure that has been practiced for more than 1400 years in the Arabian peninsula. Prolonged political conflicts and war has hampered the implementation of hima over the last centuries.

Some modern Muslim scholars describe *harim* more as a conservation zone along the river and upstream and it is more related to the protection of water resources. As a protected and inviolate zone, *harim* is also enacted to the consecrated space in a masjid. *Ḥarim* can also mean a site of high sanctity. The two sanctified sites in Islam are Masjid al-Haram in Mecca and Masjid an-Nabawi in Medina. The two are well-known as "*haramain*" or two sacred sanctuaries.

2.3 Ihya al-mawat

The opposite of hima is what is called *Ihya al-Mawat*, which literally means bringing the dead to life. In this case the dead is land. There should not be abandoned lands in Muslim areas. Muslim scholars describe *al-mawat* as neglected, unirrigated and dry lands, so that they produce nothing, let alone crops or vegetation.

And so, lands become sources of the economy, health, and prosperity. Those who cultivate and manage the dead or abandoned land are entitled to take benefit of the lands. And after a certain period of time, the cultivators are legally given ownership of the lands. As shown in Islamic history, the revival of the dead and abandoned lands brings prosperity to the community and the state.[3]

The *ihya' al-mawat* is one of the important issues during the administration of Prophet Muhammad, the Khulafa' al-Rashidun, and the ensuing caliphates from the Umayyads to the Ottoman.

Conservation sites of Islamic tradition can be found in a number of Muslim countries with different terminologies, such as *harim* zone, *hawtah*, *aqdal*, *mahjar*, *qaraq*, *doviste*, *mazarat*, and in Indonesia: *tanah adat*, *tempat keramat*, and *lubuk larangan*. In Lebanon, there are 18 himas that include important bird and biodiversity areas. This Islamic legacy of conservation sites is maintained and preserved by the local community and social organizations.

3. Discussion

3.1 The PPI-Unas

The Center for Islamic Studies Universitas Nasional or in Bahasa Indonesia *Pusat Pengajian Islam Universitas Nasional* (*PPI-Unas*) was officially established on February 20, 1985, or 30 *Jumadil Awwal*, 1405 in the Islamic calendar. The Rector of Universitas Nasional Prof. Dr. Sutan Takdir Alisyahbana and the then Minister of Religious Affairs jointly inaugurated the Islamic study center.

The two leaders jointly signed a charter that set the ultimate PPI-Unas goal: Promoting Islamic thoughts and perspective to face the present challenges.

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[2] Ibid.

[3] Ibid.

The PPI-Unas focuses on exploring Islamic thoughts and perspectives to face up to the present challenges, mainly those related to the environment, nature conservation, and climate change. This institution builds a bridging network and communication among Muslim communities and scholars as well as environmental practitioners for the good of mankind and this planet.

PPI-Unas Chairman Fachruddin Mangunjaya sees that modern science and Islamic teaching is actually no stranger to each other. He said what we call now "modern science" is a continuation of middle-aged Islamic thoughts and science. Modern science is the child of the middle age Islamic civilization.[4]

The Islamic study center integrates Islamic teaching with scientific studies to make a contribution to local, national, regional, and international initiatives on environmental projects. Fachruddin pointed out that Muslim scholars and leaders made numerous formulas from the Quran and hadits not only to deal with environmental arising but to turn the Quranic message into real action.[5]

After a series of research, the PPI found two main phenomena among Indonesians in relation to environmental issues. First, those who practice Islamic teachings on nature and the environment with lack of knowledge and scientific information about what they are practicing. Second, those who possess sufficient knowledge and scientific information about what they are doing while unaware that it is part of Islamic teaching.

The first phenomenon is in general due to the notion that science, much less modern one, is a secular domain that is less relevant to *ibadah* (religious practice). This view leads to the lackluster attitude in seeking scientific knowledge, which give a further impact on the quality of religious practices, particularly in relation to taking care of nature.

The second is seemingly the flip side of the same coin: Those who think they engage in modern science see religion as an old and obsolete knowledge and tradition, which is irrelevant to the current and latest innovations, research, and inventions. Religion should be left behind and prevented from meddling with scientific methodologies. They see religions, including Islam, do not deal with the current global issues, such as sustainable development, loss of biodiversity, deforestation, global warming, climate change, and the like.

It turns out that in many cases, the implementation of Islamic teaching on the environment is not up to the expected outcomes. On one hand, religious practice lacks a scientific perspective, so that it becomes dull and ineffective. On the other hand, science-equipped activists lack spiritual strength and enjoyment to bring their works to the expected results.

These works led to accreditation by the United Nations Environmental Program (UNEP), a recognition by the UN body of the PPI-Unas contribution to global efforts to address environmental problems.

3.1.1 Lubuk Larangan

In 2021, the PPI-Unas started its studies on the traditional river protection called *lubuk larangan*. This tradition is found in four provinces: West Sumatra, North Sumatra, Riau, and Jambi. The fact that this tradition was based on Islamic teaching,

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[4] Interview with Fachruddin Mangunjaya on Oct 14, 2022.

[5] Ibid.

as seen in the Quran recital in the closing and opening ceremonies, has drawn PPI-Unas's attention and interest in studying this practice.

Muslim community in Mandailing Natal in the Riau Province keeps a sacred place called *lubuk larangan*, which literally means "forbidden site." The establishment was based on an Islamic tradition that referred to hima. Later, the *lubuk larangan* obtains stronger legal bases after the government declared it a national park with the name Taman Nasional Batang Gadis (Batang Gadis National Park). Such higher legal status makes the site even much more significant as a source of a sustainable economy.

The National Park status was proposed by the local administration and community in order to strengthen the protection of biodiversity-rich and its ecosystem. Under the status of the national park, the *lubuk larangan* becomes the destination of ecotourism, non-timber economic resources, object of research, a safe home for biodiversity and genetics, as well as the world's carbon sink.

Jambi Province has also its sacred site with the name of Hutan Adat Keluru, while the Minangkabau people in West Sumatra Province have hutan adat and hutan nagari, which are deeply rooted in the sharia law. The Minangkabaunesse has a popular saying: Adat basandi syara, syara basandi kitabullah (the custom leans on the sharia, and the sharia lean on the God scriptures).

Fachruddin Mangunjaya said that in Rimbang Baling, Riau Province, the lubuk larangan is open for fishing for a certain period of time. "And the local community makes the opening and closing ceremonies by reciting the Quran. They are aware of the *harim* zone."

3.1.1.1 Lubuk Larangan in Jambi Province

The PPI-Unas research team found 21 *lubuk larangan* in Muara Bungo District, scattered in several villages, which are run through by the Telang River. Among the 21 are Tebat, Lubuk Mayan, Lubuk Rantau Pandan, and Muara Buat. These lubuk larangans are located by the riverside and upstream in order to protect the river from pollution and sedimentation. The Telang River runs through, among others, the villages of Laman Panjang, Buat, Lubuk Beringin, and Senamat Ulu.

In the downstream area, the river water was found to be polluted by tailing resulted from illegal gold mining nearby. Fishes were not found in the part of the river because, as Nurdin, the Head of Bathun III Ulu subdistrict, said that fishes cannot live in a river that is contaminated by tailing and mercury. He said that there had not been a regulation by the local village administration to prevent the gold mining.

After a series of discussions, the PPI-Unas and the local village administrations made a decision to bring village administrations into a joint agreement on the tailing and mercury treatment.

3.1.1.2 Lubuk Larangan in Riau Province

In the Sungai Salak and Rokan Hulu villages, the *lubuk larangan* is taken care of by the village administration. The *harim* is located by the riverside that straddles the two villages and within the oil palm plantation. When the oil palm plantation began, fish disappeared from the river due to chemical fertilizer contamination. After almost one year since the *harim* was established in 2019, fish species were seen again in the river.

The lubuk larangan covers 5 km^2, which includes riverbanks and the river. In the lubuk larangan Bendahara, the river is 100 m wide. *Harim* zone is required to include one and a half of the river size, making the Bendahara harim covering 150 m on both

side of the river. This enables the river ecosystem to recover well. The harim regulation that allows fishing only once a year speeds up the recovery.

PPI-Unas presented the pivotal value of the *lubuk larangan* in the international workshop on sacred natural sites in Islam on April 24–26, 2017 in Malta. The workshop was attended by participants from 12 countries (Bosnia and Herzegovina, Greece, Indonesia, Lebanon, Malta, Kyrgyzstan, Morocco, Serbia, Spain, Saudi Arabia, South Africa, and Turkey).

3.1.2 Harim Cihilir

In the green hilly area of Lido, Sukabumi district, West Java, around 80 km from Jakarta, there is an Islamic boarding school, locally called *pesantren*. The school compound is big—more than enough to accommodate 300–400 students. When the founders of the Darul Ulum boarding school started building the school compound in 1995, it was so hot and humid that they had second thoughts about whether the place was really suitable for learning.

Next to the *pesantren* compound runs the Cihilir river, which was then heavily polluted and silted as more people from outside built cottages by the riverside. Mineral water producers also utilize the river by pumping the water up to their refinery tanks. Headmaster of the Darul Ulum Ahmad (one name) said that the mineral water producers take the water out of the river without paying attention to what they should do to make the water supply sustainable.[6]

Four years later, the air around the school is cool and fresh and 700 trees—mango, avocado, rambutan, and durian—thrive in the zone. This huge change came about because the founders decided to set aside one hectare of the 7-hectare area as a harim zone. Any form of production and settlement in it was banned. And what is more, every student is required to plant a tree before they can take the school's final academic test.

"We imposed a policy called 'one student one tree,'" Ahmad said, adding that teachers evaluated students not only on planting trees but also on how they maintained them. "If the trees they have planted grew well, they would get a high score," he said.

Now, after almost all the allotted land has been filled with trees, pesantren leaders are under pressure to find additional land to grow trees. Besides trees planted by students, the pesantren also grows teak trees, now numbering about a hundred.

The Darul Ulum's success story in protecting nature drew other pesantrens in Bogor, to follow suit. On July 29, 2008, 19 pesantrens, representing 31,900 students converged in Bogor to launch a more ambitious move: protecting the Gunung Gede Pangrango and Halimun-Salak national park through the implementation of himma.

Data at the ministry of religions shows that 1311 of West Java's pesantrens are located in mountainous areas, 1065 in agricultural estates, 87 on coastal lands, and 114 by rivers.

While conservation has become a trigger for making Islamic teaching more relevant, it has an additional benefit—to dispel the image that pesantrens are factories for bombs and organizing suicide attacks on "kafirs," or infidels. In Garut, one of the pesantren bases in West Java province, ulemas, or Muslim scholars, have gone a step further and issued a "fatwa" or religious decree, ruling that harming nature is a serious violation of Islamic law.

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[6] Interview with Ahmad on Nov 22, 2022.

Thantowi Yahya Musaddad, leader of the Al-Washilah pesantren, has also made an all-out effort to protect the environment, even composing a "*shalawat lingkungan*" or a song of praise to Prophet Muhammad, containing environmental messages. "I see this green campaign as a call. This is a matter of faith."[7]

3.1.3 Ekopesantren

The PPI-Unas observes the role of Islamic boarding schools (*pesantren*) as innovative Muslim institution, where Muslim young generation study Islamic thoughts and teachings related to nature, learn environmental sciences, and take part in practical activities that involve science and Islam, such as organic farming and tree planting on *pesantren* grounds.

As to why the pesantren is significant in restoring the degrading environment is for several reasons. For one, most of the traditional schools has spacious compounds. On average, one pesantren compound covers five hectares of land. The PPI sees the potential of a massive green movement with these traditional schools. If half of one pesantren land is used to grow trees, then tree planting in thousands of pesantren will make a great leap toward a more sustainable environment and healthy ecology.

For another, most of the pesantrens are located in rural areas and have a deeply rooted influence on the community around them. The pesantren leaders, locally called kyais, are often more influential than the local administrations. The influence is almost in all aspects of the community, stemming from culture, religion, economy, and politics.

The PPI-Unas sees a very strategic outcome in incorporating the pesantrens in the green campaign. Fachruddin said that villagers, members of the rural community, listen more to their religious leaders, who are mostly leaders of pesantren, than to scientists or officials. So, if an organization were able to socialize a program or an action through pesantren, the community will join or at least give their support," Fachruddin said.[8]

Thanks to this strategic move, by September 2021, the PPI-Unas won a prestigious Grant from John Templeton Foundation for supporting a 33 monthly project entitled: "Strengthening the Integration of Islam and Environmental Sciences in Islamic Boarding Schools through the Ekopesantren Program."

Further development of the Ekopesantren was carried out through a simulation of the environmental education module of the Pesantren Assalam Naga Beralih, Riau Kampar District, Riau Province on November 2, 2021. Twenty-five participants, including santris (student), ustadz (teacher), and the pesantren staff took part in the simulation.

Four out of 10 ekopesantren projects are directly related to greenhouse gas reduction: (1) efficient use of natural resources and energy; (2) waste treatment; (3) alternative transportation; and (4) utilization of the pesantren compound for tree planting. The remaining projects are indirectly related to GHG reduction, among them is the moral code (*akhlak*) to the environment. The santris are given a lesson on how to behave in the environment according to Islamic ethics.[9]

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[7] Interview with Thonthowi Djauhari Musaddad on June 18, 2021.

[8] Ibid 16.

[9] The PPI-Unas 2022 Annual report.

3.1.4 Green Hajj

More than 42,000 tons of waste are produced during Hajj in the form of food waste, plastic bottles, discarded clothing, and other materials. The local authorities are also helping to combat this by providing recycling bins throughout the sites of the Hajj.[10]

Green Hajj is a well-formulated guide to perform Hajj ritual with minimum waste and pollution. The concept is aimed at reducing carbon footprint and developing cleaner Hajj rituals. On the eve of Hajj season year 1442 of Islamic calendar, Global One launched a Hajj application called Green Hajj on July 19, 2021.

A carbon calculator shows that each pilgrim produces 2.3 tons of CO_2 in the atmosphere. This is based on 43.13 passenger miles flown per gallon of jet fuel and an average distance of 4000 miles for each Hajj.[11]

3.1.5 Facilitating the Ulema's fatwa on wildlife trade

In 2014, the Indonesian Ulemas Council (MUI) issued an unprecedented fatwa (decree) that bans the trade of wild animals. It was unprecedented because the wild animal trade is regarded as not a religious issue. Nowhere to be found in the Quran or hadits that wild animal trade is forbidden or haram.

Almost unknown to the public; however, the fatwa was preceded by a series of discussions, exchange of views, and scientific information between the MUI and the PPI-Unas. For its part, the PPI-Unas provided scientific information and data on the threat of wild animal extinction and the consequences it may cause.

The PPI-Unas also convinced the MUI that Islam has a strong message on the protection of animal species and trees although it was not literally and directly mentioned in the Islamic scriptures. In fact, the MUI took the PPI-Unas scientific information and came up with the fatwa.

Fachruddin said his organization held a very intensive meeting and discussion with the MUI. The ulemas literally mean people of science. So, the scientists characterized with openness to thoughts and information. If one had a strong argument and valid data, it is not difficult to convince them.[12]

The PPI-Unas did not merely provide scientific information and facilitate the issuance of the fatwa, it also took action to ensure that the fatwa was effective. It socialized the fatwa in areas, where illegal hunting and trade of wild animals are rampant. The PPI-Unas then built cooperation with local administration of Riau Province, NGOs, and Muslim leaders to protect the endangered Sumatran tiger in Rimbang Baling Wildlife Sanctuary (RBWR).

4. Analysis

Earlier it was mentioned that the PPI-Unas deals with two groups: secular and religious. In this case, being secular does not necessarily mean being ignorant and unconcern about religion, rather, it means this group does not make religion a

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[10] Al-Hajj. Sustainability and Religion.

[11] Yamin. Kafil. A Green Hajj? Latitude.nu. Oct 18, 2013.

[12] Ibid 16.

foundation or consideration in making decisions. Government officials who make decisions based on nonreligious consideration are categorized as secular.

In the same perspective, the religious group does not necessarily mean being ignorant and unconcerned about science. It just means that this group does things mainly for religious reasons. The MUI, pesantrens, and the masjid congregation are in this category.

After fatwa training with religious and community leaders, 96% of participants agreed that the Quran teaches that humans have an obligation to protect nature. After fatwa-themed sermons, congregants demonstrated an improved understanding of conservation issues and regulations (e.g., understanding about prohibitions on caging wildlife as pets increased from 37.5 to 64.4%).

A recent survey of teachers and religious leaders revealed that those understanding ecosystem services rose from 50 to 92% after the training. Those who understood the Islamic systems for natural resource management rose from 0 to 100%.

In 2017, after 2 years of raising awareness on the fatwa in Muslim communities in Sumatra, villagers who take action on conservation increased from 48.4% in 2015 to 71.6% in 2017. It was found that the level of intention to act in ways that benefit conservation also indicates the level of success in behavioral change. This accomplishment can be regarded as a point of integration of science and religion.

The attainment of stronger legal status from "lubuk larangan" Mandailing Natal to the Batang Gadis National Park is another example of the integration of science and religion. When the site was initially claimed as lubuk larangan based on Islamic teaching with less information and knowledge about the highly important value in terms of an ecological system. On the other hand, the Forestry Ministry officials and NGOs see the need to protect the area with less knowledge about how Islam has a strong message about it.

Data on whether or not the number of cases of illegal hunting, and logging is decreasing after the lubuk larangan became a national park is not available, but according to locals' testimonies the number of such cases is significantly decreasing.[13]

5. Conclusion

The integration of science and Islamic teaching by the PPI-Unas is executed by providing scientific information to the religious groups on one hand and giving Islamic insight to secular groups on the other hand. The provision of knowledge background to each group has resulted in new awareness among the environmental practitioners, and works of the two, which in turn brought better and sustainable works of fighting environmental degradation.

Acknowledgements

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[13] Interview with the local villagers during field visit on June 3–June 7, 2021.

Conflict of interest

There is no conflict of interest in writing this paper.

Acronyms and abbreviations

PPI-Unas	Pusat Pengajian Islam Universitas Nasional
IUCN	International Union for Conservation of Nature and Natural Resources
BKSDA	Badan Konservasi Sumber Daya Alam

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Perspective Chapter: Prospective of Sectoral Competences for the Design of Dictionaries of Professional Competences and Research

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Abstract

According to the challenges of technological higher education in Mexico, facing the requirements of graduation profiles that respond to educational competitiveness in the face of the challenges of Industry 4.0 and even toward Industry 5.0. This applied research initiative is oriented to the development of actions to strengthen sector competitiveness, considering the learning curve generated in the strategic sectors of Mexico, through the research work of experts in technological higher education of Mexico and specialists in labor, professional, and research skills. The main objective is to present the model to develop Competency Dictionaries Sectoral (DCS) for each study program, through the methodology of the Fifth Systemic Helix (in Spanish: Quinta Helice Sistemica—QHS), as a strategic contribution to reduce the gap of the different knowledge of the competencies in the occupational functions in the regional strategic sectors of the north, center, and south of Mexico; under the frame of reference of the state-of-the-art and frontier research of international knowledge, the foregoing sustained from the scientific work initiative of the academic body project of the Department of Economic and Administrative Sciences entitled "Sectoral Competitiveness, Social Innovation and Sustainable Development" of the National Technological of Mexico, Tijuana Campus.

Keywords: Fifth Systemic Helix (QHS methodology), competency dictionaries sectoral, sustainable education, social economy, circular economy

1. Introduction

The recommendations of the Organization for Economic Cooperation and Development, 2019 [1], report on competencies in Mexico, the current model of the Mexican competency system, has an opportunity to rethink actions aimed at strengthening

the model. For this reason, the proposal of this article is based on the challenges indicated by the OECD to develop the welfare and social progress policies of the federal government of Mexico, sectoral analyzes of the strategic national programs have been generated as an identification of the sectoral gaps at the national level and with it the reorientation of actions and priorities of applied research projects from the higher education sector, as well as the national model and the effective methodology to move to the next stage of the development of the strategic economic sectors, facing the challenges of globalization and the needs of relevant and competitive occupational profiles in the face of the Industry 4.0 revolution and the generational transition to Industry 5.0. Likewise, awareness of empowerment about the Sustainable Development Goals (SDG) of the UN 2030 Goals [2], which makes it imperative to build a model and an appropriate methodology for professional skills and research, making clear the differentiation of the eight levels and their requirements for training, alignment, evaluation, and eventual certification of job skills, professional skills, and applied research skills, with social impact and territorial development, encouraging local capacities with linkages that influence social innovation and with startup and spinoff-type ventures.

This article is based on the development of three scientific research projects registered at the national level at the National Technological of Mexico:

1. Observatory for the integration of engineering to the ecosystem of economic development of the peninsula of Baja California [3],

2. Observatory of sustainable development in graduate programs in Baja California [4], and

3. Prospective of dictionaries of labor, professional and research competences for the sectoral development of the social and solidarity economy in Mexico.

All the above is intended to generate data on the relevance of the programs of study and the effectiveness of the competitions labor, professional, and research, as well as evaluate the results of the graduates in the context of regional development and productive vocations relevant in northwestern Mexico. The purpose of the project is to examine the employability of students and graduates, as well as analyze the causes of the student dropout rate in engineering, which is about 40% during the first semester. The high dropout rate may be related to the socioeconomic factors affecting northern border cities, which have experienced an influx of migrants arriving from Southern Mexico. Until now, the research has focused on sectoral studies related to the postgraduate master's degree in administration at the Technological Institute of Tijuana and the systematic development of projects related to various strategic sectors of industry [5] in which initiatives have been created for applied research programs through postgraduate theses, social service programs, complementary credits in educational programs and professional residences (professional practices).

This research focused on the development of an electronic survey that could systematically collect key information for the creation of an electronic empirical database for the development of a web page that will serve to assess employability and performance, as well as to track results. economic and strategic of students and graduates of engineering and economic-administrative sciences. The aim was to identify variables that could generate feedback on the causes of student dropout rates, as this can have a significant impact on students' families and futures, as well as their communities. In

addition, the development of this survey can provide valuable information on the effectiveness of educational programs and learning tools, especially for students who work and study simultaneously. Also, an empirical database to monitor the employability and career outcomes of graduates could be a strategic tool that could provide useful information for other technological institutes, such as those located in Tijuana, Mexicali, Ensenada, and other higher education institutions in Baja California and a national benchmark, and thereby strengthen strategies of relevance and social entrepreneurship seeking sectoral well-being through the social and solidarity economy [6].

2. Theoretical framework (state-of-the-art)

The scientific research project focused on the creation of a methodological proposal called dictionaries of sectoral competences, part of the learning curve generated by more than a decade of applied research in different sectors through the QHS methodology for sectoral integration; which considers a multidisciplinary work with specialists representing the government sector, universities, companies, associations, clusters, and consultants. In order to analyze the gaps in the human capital agendas for their full labor, professional, research, and innovation development. Under the leadership of the technological higher education institutions, encouraging competitiveness through educational relevance for the development of innovation and sustainability ecosystems.

This research employed a systematic approach with the QHS methodology developed [7, 8] to cover all aspects of society; therefore, sectoral experts were contacted, such as government, educational, business, professional associations, chambers, as well as specialized consultants.

Figure 1 presents a chronological review of the state-of-the-art on competencies for professional development. In 1973, the article was published "Measuring competencies and not intelligence." [9] Under initiatives of applied research projects from the academy, case studies have been developed, aimed at systematizing and generating a database that generates the variables that become labor, professional, and research skills, based on the professional careers of the Department of Sciences. Administrative economics of the National Technological of Mexico Tijuana Campus, and thereby facilitate the development of the focus group processes to convene review processes, update study plans, graduation competencies, and specialties required by the interest groups that eventually become the main employers of higher education graduates. Under a natural process, they become candidates for supervisory, coordination, managerial, or even managerial-level positions. In specific cases, they are children of businessmen, who require skills to join the board of directors of family businesses or corporate groups.

The prospective goals for the implementation of circular economy models in SMEs in Baja California, as well as the enterprises and practices of the social economy and social innovation, require the human capital agenda that integrates variables of technical skills, soft skills, and transversal competences under the skills approach, on knowledge, intervention methodologies, as well as tools and instruments to strengthen efficiency, effectiveness, and productivity, and with it the robust concept of competitiveness, including future skills in managing the Sustainable Development Goals of the UN 2030 goals through the nodes of social and solidarity economies (NODESS) programs.

In this line of development of human talent management, in 1985, the National Council for the Evaluation and Certification of Labor Competence [10] was created as a Federal Government entity under the Ministry of Public Education, with the aim of
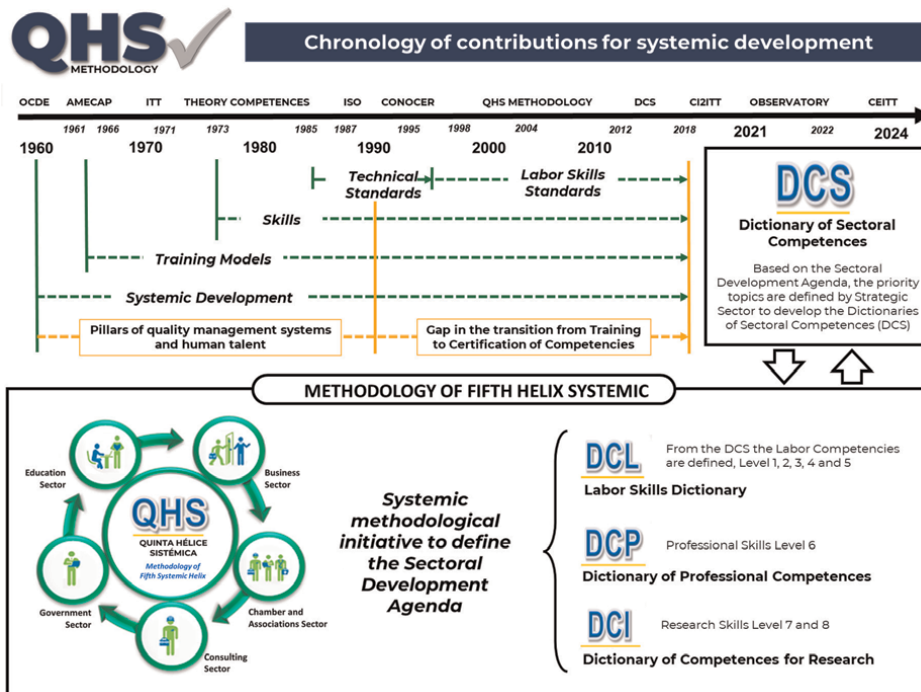
Figure 1.
Timeline of the transition from training to competencies. Reference: Own elaboration (2022).

contributing to raising the level of economic competitiveness, educational development, and social progress of people, in the country, through the national system of people competences and defines the labor competence standards in light of the challenges identified and indicated by the OECD.

In the 90s and as a result of the international standards of the International Organization for Standardization, the competencies of human resources in organizations are defined based on four components: education, experience, training, and skills, and with it generate technical standards for its definition. In 2011, the United Nations Educational, Scientific and Cultural Organization (UNESCO) approved the application of the International Standard Classification of Education (ISCED) [11], The nine educational levels begin with the first instance of learning (0), elementary (1), secondary (2), baccalaureate (3), technologist (4), higher technician (5), bachelor's degree (6), master's degree (7), and PhD (8).

The chronological phases of the conceptual transformation of the term competencies are derived from two philosophical approaches.

1. The first conceptual approach is associated with aspects of competencies supported by constructs of abilities, skills, and aptitudes of knowing how to know, knowing how to do, and knowing how to be.

2. A second conceptual approach is associated with the transversal application of the application of competencies, where the performance of individuals reflects the level of efficiency, productivity, and competitiveness of public and private organizations.

The competencies reflect the product of experience, performance, and good practices developed throughout the productive life of the economically active population; therefore, the level of international competitiveness of a country.

As part of their studies, defined that the characteristics of the competencies are made up of a set of attributes (enumerated) of the individual, not limited to knowledge, but include skills, attitudes, communication, and personality, in other words, it takes into consideration all work elements, not limited to just knowledge [12]. According to specialized studies on competencies, it is concluded that competencies can be measured with assessment instruments. In the case of theoretical knowledge, questionnaires are developed; in the case of know-how skills, rubrics are developed with checklists with specific criteria for a product or service to be developed. And in the case of the evaluation of attitudes, performance guides are developed with specific criteria of behaviors and universal ethical values.

In the year 1994, four classifications of professional competencies were described [13]:

1. Technique: Development of the management of the different knowledge necessary in a specific function of specialized performance.

2. Professional: Role of specialization in the performance of functions under the criteria of an expert, backed by previous experience in the specific function to be performed.

3. Social: Performance with attitudes of the leadership role, group management, and interpersonal relationships, with conflict resolution skills.

4. Participatory: Skills of the decision-making role, delegation, and administration of responsibilities of the work team.

The state-of-the-art on study approaches based on the evolution of performance competencies in individuals chronologically since the eighties were associated with abilities and hallmarks of extraordinary talent in isolation. In such a way that success in professional performance was correlated to the individual cognitive qualities, for which the competencies evolve toward a more complex definition that protects competencies as functional personality configurations made up of knowledge, skills, motives, and values. **Table 1** describes the typology of competencies necessary for work, professional, and research development, as well as soft skills and transversal competencies for managerial development. The professional competence approach and models consolidate the elements necessary to cover the needs of people, companies, and society.

In the field of professional competencies, the research-based approach defines three main conceptions [14]:

1. Behaviorist: Includes the comprehensive approach to growth, from the point of view of the full improvement of the individual to their maximum performance capacity and challenges of personal improvement.

2. Functional: Under the principle of the functional map structure, it is established that every individual has a key performance function in an organization and a specific contribution from their profile of the position held in the organization.

Objective of agenda 2030	Action/contribution
SDGs 1—End of poverty	In progress
SDGs 2—Zero Hunger	Product analysis project not in force in tortilla shops
SDGs 3—Health and well-being	Analysis of the nutritional impact of corn
SDGs 4—Quality education	Through academic and research bodies, offer training
SDGs 5—Gender equality with equity and equality actions in the processes of orientation	With equity and equality actions in the processes of orientation
SDGs 6—Clean water and sanitation	In progress
SDGs 7—Affordable and clean energy	In progress
SDGs 8—Decent work and growth economic	Analysis of typologies of trades and tasks in ESS of Tijuana
SDGs 9—Industry, innovation, and infrastructure	Development of productive projects with social innovation
SDGs 10—Reduction of inequalities	Social inclusion and integration projects
SDGs 11—Sustainable cities communities	Identification and definition of variables of an observatory of SSE in Tijuana
SDGs 12—Responsible production and consumption	In progress
SDGs 13—Climate action	In progress
SDGs 14—Underwater life	In progress
SDGs 15—Life of terrestrial ecosystems	In progress
SDGs 16—Peace, justice and strong institutions	In progress
SDGs 17—Alliances to achieve the goals	Inter-institutional collaborative work
Reference: Own elaboration (2022).	

Table 1.
Contribution to the SDGs by the NODESS Tijuana project.

3. Constructivist: Competences are processes of constant evolution in individuals, learning as a factor of empowerment of the relationship of the performance of activities, responsibilities, and experiences acquired in the different roles of the learning curve of professional experience.

3. Methodological strategy

Through sectoral comparison and the use of the Fifth Systemic Helix (QHS in Spanish) methodology [15, 16], an evolution of the Triple Helix component of the economic growth model of the sixties of the twentieth century, but contextualized to the reality of the new century and the global trends of economic development, a series of methodological alternatives and systemic variables are proposed, according to the QHS methodology for the cooperative sector and the social solidarity economy (ESS) for the exploration of research that approaches the determinants of the state of development and its competitiveness.

Methodology QHS	Bachelor's degree	Postgraduate and research	Continuing education and professional update
H1. Government	Municipal	UN Goals 2030	Social economy, solidarity, cooperatives
H2. Education	Educational relevance	Entrepreneurship and spinoff projects	Telecommuting, remote, or work from home
H3. Business	Legal compliance and learning curve	Tools for continuous improvement	Technological capabilities and innovation
H4. Associations	Legal compliance and post-covid actions	Local and global competitiveness	Development and training
H5. Consultants	Audit and legal regulations	Sustainable development	Professional certifications

Reference: Own elaboration (2022).

Table 2.
Typology of skills necessary for professional development.

Table 2 presents a relationship of actions developed with the QHS methodology, thereby generating indicators for the sectors: cooperatives, cooperative education, government (public management for cooperatives), cooperative associations (including the perspectives and expectations of society on cooperatives and the social solidarity economy) and cooperative consultants, representing a frame of reference for the systemic evaluation of the development of cooperatives local, regional, and international (models of good practices).

The vein proposals for future research in the cooperative sector and social solidarity economy (ESS) are raised through a methodology called Fifth Systemic Helix (QHS). **Table 3** conceptually describes the different types of skills. One of the great

Competences	Conceptual description
Labor	Manual assembly of products, low level of technology in processes
Professionals	Teamwork, responsibility, initiative, interpersonal relationship, willingness to learn, punctuality, interpersonal communication, leadership, organization, analytical skills, knowledge of some software, skills for math or any other basic subject, good spelling and writing, creativity and inventiveness, acceptance of changes, active listening, communication effective from different means, tendency to solve problems and not create them, motivation, and accept criticism and offer it appropriately
Research	Pose a problem, develop a contextual framework, review the state-of-the-art, create and validate a data collection instrument, build and validate models, master data techniques, master scientific writing style, present research papers in conferences, languages, and knowledge of art and culture universal.
Soft	Communication, time management, emotional intelligence, adaptability, creative thinking, empathy, organization, teamwork, resolution of problems, and leadership
Global and managers	Global and intercultural knowledge, understanding of local issues, appreciation of worldviews, understanding of differences in communication, and methods of interaction with different cultures and languages.

Reference: Own elaboration (2022).

Table 3.
Typology of systemic competences for professional development.

values of solidarity companies is their cooperative nature and ability to manage organizational work in education, training, and awareness of associativity.

The proposal of the QHS-ESS variables leads to the beginning of a multisectoral relationship with unity and synergies orientation toward the improvement of the conditions of the principles of cooperatives and the social solidarity economy in the face of the challenges of an increasingly globalized economy and with requirements of quality management systems and international competitiveness.

It is worth mentioning the context of the historical development of cooperative companies; it was born at the height of the Industrial Revolution, under two large branches and with a great diversity of activities, the first focused on consumer activities and the second on production or industrial activities. In the same way as a capitalist company, the cooperative company has the function of producing; however, its objective or purpose is not to obtain maximum benefit or profit, but rather the development and well-being of its members, thereby covering the essence of the social solidarity economy companies.

Within the systemic approach to cooperatives, it is convenient to mention the seven cooperative principles, which are:

a. Voluntary and open membership,

b. Democratic management by partners,

c. Economic participation of the partners,

d. Autonomy and independence,

e. Education, training, and information,

f. Cooperation between cooperatives, and

g. Interest in the community. Cooperatives represent the most widespread form of social economy entity in the world.

The cooperative sector represents a fertile scenario for the development of the welfare of the social economy, through the combination of different forms and articulation of efforts of sectors and activities of inter-cooperatives, generating and consolidating the sustainability of the organizations, the approach of the variables of cooperatives, the perspective of the principles of research in cooperatives and social solidarity economy is addressed and that, through systemic research, opportunities are identified to strengthen through education and cooperative values a collective wealth, generating with it, development of successful cooperative models. Prospective of sectoral competences for the design of dictionaries of professional competences and research, cooperative sector in Mexico, research topics are:

1. National Competence System: competency training gap.

2. Analysis of the results of the municipal development agendas—INAFED/SG (articulation of local governments)

3. Requirements for the development of a world-class local supplier.

4. Gap between higher education and cooperatives.

5. Competencies of the logistics actor in the strategic sector of logistics services in Baja California.

6. Model and methodology for DCS for cooperatives.

Within the framework of the project to form a NODESS program in the city of Tijuana, through the call of the National Institute of Social Economy (INAES) for the articulation sector through the leadership of higher education institutions, the Technological Nacional of México, Tijuana Campus has taken the initiative derived from the development and direction of educational programs for different sectors of society with impact in the social economy, the Research and Information Center for the Social Economy and Solidarity (CIRIEC Mexico North Region), with the objective of systematizing experiences and dissemination of social economy and solidarity models. Active participation in the Honorary Presidency of the Social Economy Commission of the Development Ecosystem Economic Department of the Tijuana City Council, in addition to international links.

Preliminary studies by observatory researchers [17] promoted the design of dictionaries that have been used to define the competencies of the sector as a strategy to improve and promote continuing education and professional updating. **Figure 2** NODESS TIJUANA program operation model, necessary for professional development and issues concerning the master's in administration program [18] that have been addressed by the academic body project called "Sectoral Competitiveness and Innovation," which included a multidisciplinary group of professors and researchers of the Department of Economic and Administrative Sciences, Division of Graduate Studies and Research, of the National Technological of Mexico, Tijuana Campus (TecNM).

Figure 2.
NODESS TIJUANA program operation model. Reference: Own elaboration (2022).

TecNM Tijuana currently leads the project of the Federal Government Secretariat of the Interior in Mexico to promote Nodes for the Promotion of the Social and Solidarity Economy (NODESS), it is a program that articulates the efforts of municipal institutions, cooperatives, and higher education institutions. Through the master's in administration program, applied research is developed to strengthen the capacities of sectors, such as the medical tourism cluster, determining the training and educational skills of all sectors involved in the provision of labor, professional, and research services [19].

According to the UN [8] "The SDGs are appropriate mechanisms that will allow the population and its leaders to jointly participate in the search for social consensus and reduce the gaps." The 17 Sustainable Development Goals, and their 169 goals, affect the structural causes of poverty, combat inequalities, and generate opportunities to improve the quality of life of the population within a framework of sustainable development. **Table 4** presents the sustainable development objectives that integrate the NODESS TIJUANA program. This important agenda serves as a launching pad for action by the international community, governments, as well as law enforcement agencies civil society, academia, and the private sector, in order to address the three interconnected elements of sustainable development: economic growth, social inclusion, and environmental sustainability.

Focus FHS	Bank of questions by systemic sector
H1. Cooperative companies	• What are the problems or challenges of the cooperative sector to strengthen its internal operations? • What do cooperatives need to integrate at the regional level? • What are the barriers that cooperatives face at the local and regional level? • What do cooperatives need to internationalize? • Have cooperative consultants contributed to the success of the cooperative sector? • What do cooperatives need to open up to cooperative educational links? • How can cooperatives be linked to all sectors? • What is the cooperative perception of the other sectors? • Do the cooperatives consider that the profiles of the professionals have labor, professional, and research competences on cooperatives? • What do local suppliers need to do to be chosen by cooperative companies? • What kind of help do cooperatives need to develop local technology with support from the government and schools? • What is the profile of a successful cooperative?
H2. Cooperative education	• What are the knowledge and skills (competencies) that are provided in the schools for the cooperatives sector? • How do the schools update their plans and study programs according to the advances and development of the cooperatives/ESS? • How are the professors updated to teach the current issues of cooperatives and social and solidarity economy? • How do you measure the effectiveness of your study programs, according to the development indicators of cooperatives? • How is the link between the education sector and the cooperatives promoted? • How is cooperative education promoted for the development of models and self-management? • What are the main needs of the cooperative education sector? • What are the main lines of research in the cooperative sector?
H3. Government–public management for cooperatives	• What are the commitments to the health and education of the workers of the cooperatives? • How can the government be facilitated with actions that contribute to the development of local supply through local professionals and entrepreneurs for the cooperatives and social economy sector?

Focus FHS	Bank of questions by systemic sector
	• What does the government need to develop public policies that encourage and protect cooperative companies?
	• What initiatives is the government developing in preventive terms of public safety that do not affect the development and investment of the cooperatives?
	• What strategic actions is the government developing in the short, medium, and long term for cooperative development?
	• What failures does the government recognize that it has had and therefore the local supply for the cooperative and social economy sector?
	• Would the government be open to creating an agenda for cooperative development, regardless of what changes exist at the political level?
H4. Cooperative associations	• What are the strategies to help local and national suppliers to insert themselves and contribute to the cooperative sector?
	• What programs have generated and encouraged the development and consolidation of the cooperative sector?
	• What are the strategies to support cooperative businesses and the benefits of being a member of a cooperative association?
	• How is cooperative research promoted?
	• How is communication promoted between cooperatives?
	• How is the development of human resources promoted in cooperatives?
	• How do you promote protection and support gender equality initiatives in cooperatives?
	• How is the certification of labor, professional, and research skills promoted in cooperatives?
H5. Cooperative consultants	• What is missing in educational institutions so that their graduates are more entrepreneurial and consolidate the cooperative sector?
	• What actions do you recommend to the government sector to strengthen the cooperative sector and the supply chain through local and national suppliers to promote the development of regional vocations?
	• What initiatives are considered to be carried out by business organizations and chambers in order for them to be a key actor or agent of change in cooperative development and the social economy?
	• What are the professional services that cooperative consultants must provide to help increase competitiveness?
Reference: Own elaboration (2022).	

Table 4.
Bank of questions to determine dictionary of sectoral competences.

4. Results

The present investigation generated various strategies for the construction of the variables that would generate the elements, constructs, and scaffolding necessary for the design of a model based on an observatory for monitoring the results socioeconomic and employability of students, graduates, and even students who failed to complete their professional or postgraduate studies.

For TecNM Tijuana, it is a matter of concern, since it is national policy to promote professional training since it affects the future development and social progress of the country. In addition, having an educated population reflects the country's competitiveness and innovation in the face of global challenges [20].

The first methodological approach of this research was based on a prospective study on the certification of competencies in Mexico. This study generated the current standards for study programs in technological higher education, specifically those that

lead to engineering careers in various economic regions of the nation. In Mexico, there are three regions, known as north, center, and south, and each of these regions has specific needs for commercial vocations and ecosystems based on their natural environments and very different socioeconomic developments, supported by their business vocations associated with their strategic sectors that make up their economic development ecosystems.

This study generated the principles for the design of sectorial competence dictionaries (DSC) that propose competence standards in order to certify the knowledge, skills, and understanding acquired according to the occupational profiles of engineering graduates in an effort to produce personnel highly qualified and prepared to respond to the needs of business sectors [21]. That is why the National Technological of Mexico, Tijuana Campus at the national level is the technological higher education institution that generates 50% of the enrollment of engineering graduates in Mexico since 1948, with currently more than 600,000 students with 254 campuses throughout the national territory.

As a product of a systematically developed method, the structure of the empirical database was defined for the observatory's approach to monitor the employability results of engineers trained by the National Technological Institute of Mexico Tijuana.

The results will be of a public nature and may be used to collect information and targeted feedback that will influence strategic decisions and actions in different sectors, not only for this study, but also for research and development programs in different sectors of the industry. Periodic reports from the observatory will provide feedback on relevant needs and gaps in management education and development programs, including job and business acumen, research, and soft skills, according to local, national, and global challenges. Described below are the data mining elements that defined the electronic survey inquiries that will be circulated as a plan among students and graduates representing more than 35,000 graduates from the Tijuana campus alone.

The first preliminary results of the in-depth interviews carried out with engineering professionals who have successfully graduated from the National Technological of Mexico Tijuana Campus, raised central issues, which will be considered pillars of the necessary skills for the employability of graduates of engineering study programs, as well as the knowledge and specializations required. **Figure 3** describes the road map of the model to develop dictionaries of sectoral competences.

The methodological proposal to develop dictionaries of sectoral competences was born as a strategy of the experience generated in the collaboration of the development of municipal development plans and the analysis of the national strategic programs of the nation plan, which is aligned with the Sustainable Development Goals of the 2030 Goals of the United Nations Organization. Developing sector development agendas makes it possible to identify gaps to limit challenges and areas of opportunity to encourage sector development and growth. Strengthens the relevance of study plans in the academic sector, as well as the training and development processes.

In the State of Baja California, a sectoral articulation and linkage model has been developed, which is characteristic of the unit and focused on strengthening specialized human capital. Historically, Baja California has distinguished itself by development and innovation, with a very independent style, considering its geographic situation similar to an island, where its territorial limits are the State of California, United States, and the State of Sonora and Baja California Sur.

The following points detail the data collected by the electronic survey. These will be disseminated through the electronic survey and social networks to the
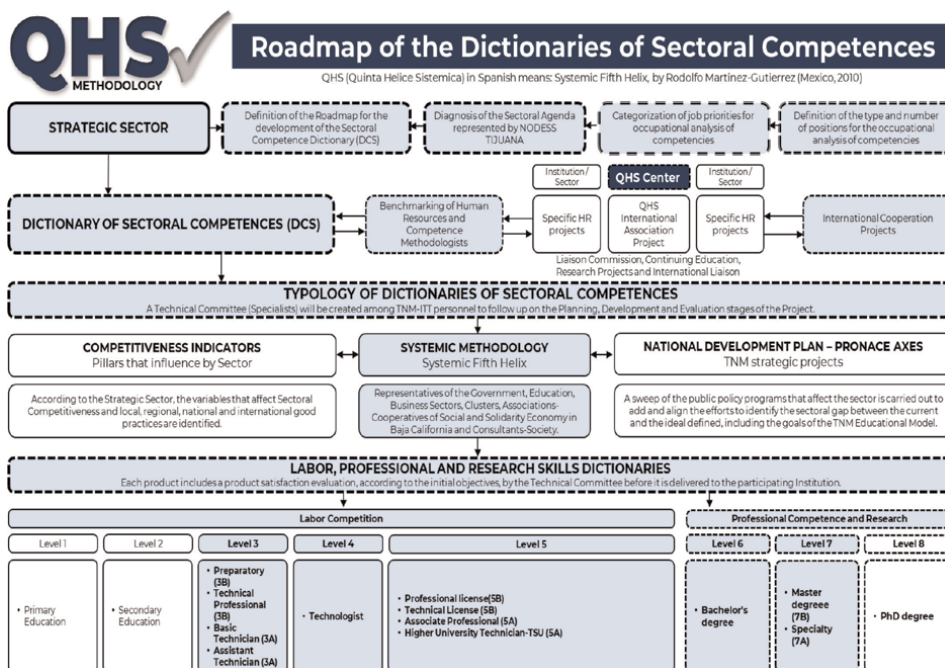
Figure 3.
Model for the development of a dictionary of sectorial competences. Reference: Own elaboration (2022).

more than 35,000 TecNM Tijuana graduates, as well as to the 12,000 students on average.

4.1 Respondent data

4.1.1 Characteristics of the respondent

Academic training: Participants will have 254 current technological institutions to choose from and select for their survey.

- Enrollment status, student: Individual currently in a program of study (participants may select a professional or graduate option).

- Status of registration, graduate: Person who completed a study program, either at the professional or postgraduate level (master's or doctorate) or exchange.

- Alumni enrollment status: Natural person who suspended their studies temporarily or indefinitely.

4.1.2 Statistical data of the respondent

- Year of the beginning of professional and/or postgraduate studies.

- Year of completion of the study program.

- Student, employee, entrepreneur, unemployed, or researcher.

- Thesis, title, and professional license, or in the process of completion.

- Personal information, marital status, age, and place of birth.

- Place of residence and employment (local, national, or abroad).

4.2 Data of the labor sector of the student or graduate

4.2.1 Characteristics of employment sectors

- Primary sector: Livestock, fishing (river and sea), agriculture, mining (mines and rock complements), and forestry.

- Secondary sector: Industrial, energy, mining (also considered part of the secondary sector due to various products derived from mining), and construction.

- Third sector: Transportation, communications, business, tourism, health, education, art, finance, and administration.

- Fourth sector: Information and knowledge services, research and development, and innovation.

- Fifth sector: Health services, security, emergency services, education, culture, science, social, and domestic activities.

4.2.2 Employment characteristics

- Sector: Private, public, cooperative, or social economy.

- Type and level of position held in the organization or institution.

4.3 Typology of skills necessary for professional development

4.3.1 Research skills

   The skills in the research process highlight the ability to theorize and build models and scientific writing skills, as well as the relational capacity of the researcher with the research subjects, data management, and certain personality characteristics of the investigator.

4.3.2 Soft, managerial, and global skills

   Global competence is a multidimensional and lifelong learning goal. Globally competent individuals can examine local, global, and intercultural issues, understand and appreciate different perspectives and worldviews, interact successfully and

respectfully with others, and act responsibly toward sustainability and collective well-being.

According to the applied research developed on "Labor, professional and research skills for logistics engineers" at TecNM Tijuana, defined by the principle of the correlation between competitiveness and education, it is essential to point out that a prepared society will have better and greater opportunities for growth, development, and progress. Which makes it necessary to reflect from the academy, specifically from the technological higher education sector on the determinants that impact the innovation of human talent. By developing self-management capacities, the maximum participation of cooperative members is achieved so that the best decisions are strategically made for the benefit of the entire cooperative organization and the relationship with other entities that can contribute to the growth and sustained prosperity of the cooperative under the interaction with society. The development of cooperative companies is linked to the principles of alliances and strategies of sectoral interoperation and solidarity growth. This contribution is a benchmark for exploring the challenges of cooperatives from a systemic approach and that provides a benchmark for sectoral public policy initiatives of the social solidarity economy.

As a result of documentary research and the strategic application of the Fifth Systemic Helix methodology for the social and solidarity economy sector, a consensus has been reached on the development of a bank of key questions for the approximation of the identification and consideration of all comprehensive approaches to develop a dictionary of sectoral competences, which integrates the dictionary of labor, professional, and research competences, to strengthen the sectoral development of the social and solidarity economy, thereby encourage development and social impact, implicitly considering the 17 objectives for the sustainable development of the 2030 goals of the United Nations Organization.

The scientific research project "Prospective Dictionaries of Labor, Professional and Research Competences for the Sectoral Development of the Social and Solidarity Economy in Mexico" represents the applied research efforts developed during the period 2019–2023. Within the framework of the creation and registration of the first NODESS (social and solidarity economy node) on the northern border of Mexico [22], the City of Tijuana has become a benchmark for innovation and vanguard models in sectoral articulation processes, from the academy with the government sectors, clusters, business chambers, and specialized consultants.

The National of Mexico, Tijuana Campus has promoted the development of an observatory of the evolution of the Sustainable Development Goals of 2030, under the registry of scientific research projects registered at the national level with the purpose of generating knowledge through scientific articles and linkage practices between national and international research centers, generating comparative studies of good practices between universities and researchers and representatives of different sectors of society. The collaboration of the Tijuana City Council through the Municipal Institute for Citizen Participation has generated a statistical analysis of the existence of more than 57 thousand SMEs with challenges of implementing sustainability projects, and the determination of critical factors in the social and solidarity economy. The city of Tijuana, due to its geographical location in the Baja California Peninsula, represents the opportunity for comprehensive systemic development for all sectors of society.

The preliminary results in Phase 1 and Phase 2 show key variables to include in an electronic survey, which will be circulated among TecNM Tijuana students and graduates, businessmen, and graduates in their professional practice, with the data

collected will support the development of a database through a web page, and the development of dictionaries of sectoral competences, to strengthen the employability and follow-up at the local, national, and international level of graduates and students. The conclusions of this research suggested that the information in the database should include factors that affect student dropout rates, such as business affiliation and sense of belonging, as well as those that affect comprehensive competencies for employability, professional development, continuing education, and professional updating through postgraduate studies and research.

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Sincerely
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Section 2

Educational Standards and Quality Assurance

Perspective Chapter: Principles of Higher Education

Carlos López Dawson

Abstract

The right to education is enshrined in international law and its fulfillment appears every day as a citizen demand. In general, the States recognize the right to education when they signed the Covenant on Economic, Social and Cultural Rights. Social and Cultural Rights in which it is materialized in a concrete reality that must be expressed in education itself. It is necessary to understand that education is the result of a non-democratic model imposed by a dictatorship, the purpose of which was to protect capital, with which everything remained a prisoner of a neoliberal conception. Of course, education is a necessity both individually and collectively, so that efforts for quality higher education are necessarily related to the democratization of societies. Finding such an answer is everyone's task and this forces the analysis of laws and behaviors.

Keywords: right to education, pre-eminence, inequality, economic, social and cultural rights, teaching, research and extension

1. Introduction

The question arises as to what is the purpose of higher education [1], especially postgraduate education, and whether there are guiding principles [2]. Undoubtedly, before answering this question, it is necessary to know the social and legal context in which education is developed and whether this context will have an impact on it [3–10].

In many countries there are social demands that go beyond education [11]: change in the development model, which demands more equality, less discrimination; more kindness, less authoritarianism; more tolerance, less marginalization; more truth, less disguises; more life, less obscurantism; more diversity, less rejection of those who are different; and more than that, full respect for diversity, more integration, less human suffering; more rights, more dignity and recovery of natural resources [12]. Demands that have been taken up by political parties and civil associations everywhere [13].

Social organizations everywhere invite us today to advance resolutely in the solution of these problems so that human rights can be exercised by all. This requires promoting a greater development of the culture of human rights, strengthening education in these matters, introducing reforms to the legal order, strengthening justice and establishing social policies to overcome poverty, marginalization and psychological integrity,

punishing racism, putting an end to profit-making in education and establishing free, quality public education. In order to achieve such effectiveness, it is urgent to energetically position human rights in the State, so that all its organs, institutions and instances allow its exercise, while transforming the State into an authentic Social and Democratic State of Law, and also to reform Justice, continue ratifying international conventions on fundamental rights including those of the International Labor Organization, guarantee the exercise of fundamental rights with constitutional actions for their enforcement, promote the decentralization of politics through the creation of mechanisms that allow greater participation of the people in political decision making, such as plebiscites, referendums, and referendums, such as plebiscites, referendums and popular consultations, creating state institutions such as the Ombudsman to reduce bureaucracy in access to state mechanisms, developing an international policy based on human rights, solidarity and reciprocity, proposing the inclusion in trade and economic integration agreements of norms on human rights and social policies, promoting legal reforms for a better exercise of human rights, the establishment of a full democracy by creating a new constitution that ultimately changes those aspects that prevent the full exercise of human rights. All the above is already proposed and recognized in the different international conventions and in the United Nations Charter itself.

It is necessary to establish as a society a comprehensive proposal to overcome the inequities that the current model of society has produced and to begin with, gathering the social demands, the following should be agreed upon [14–20]:

- To achieve a full, tolerant, uncensored, and welcoming democracy, which implies the end of the binominal system and the creation of plebiscitary mechanisms.

- Generate a society that emphasizes human dignity as a central value.

- Educate children and young people in a culture of profound respect for human rights.

- To build a society in which human rights are never again violated. The best guarantee of respect for human rights consists in a society in which every woman and man is clearly aware of their own and other people's rights, and has the vocation to be the protagonist of their affirmation and defense.

- To build a system of free, quality public education at all levels, accessible to those who have the capacity to do so.

- To create support institutions for those who do not have sufficient intellectual or information capacities to access higher levels of education.

A State policy focused on full respect for human rights can only be the product of a democratic society project based on the development of international law and science, where social and political actors, civil society, culture and individual acts are the reflection of a deep conviction: respect for the other, recognition of diversity, acceptance of pluralism.

If we understand that a university is par excellence the natural center for the free development of thought and ideas at the highest academic level, we can conclude that the academic units that emanate from it must enhance and outline this role to the rest of society [21].

Accepting, as an essential basis of the work of the University, the revaluation and enhancement of the concept of citizenship as an axis of basic development of a democratic system, this institution should be a natural axis of articulation of knowledge and deepening of matters related to human rights and humanitarian law and its natural relationship with civil liberties and the deepening of democracy [22].

2. A constitutional proposal

For a year a Constitutional Convention worked in Chile, proposing a text of a new constitution submitted to popular consultation on September 4, 2011, and rejected by 63% of the electorate, in an election with the highest citizen participation in the history of the country.

The constitutional process has undoubtedly been epic in every sense, not only as it originated from a massive protest, the largest in the history of the country, in the election of the conventions, in its debates, in the obstacles and traps that tried to place the supporters of the constitutional status quo, who in a hypocritical manner presented themselves to draft a new constitution when in reality they only aspired to the failure of the Convention and finally for the intense work done in pandemic conditions, a meritorious work that deserves recognition [23].

The whole system of domination, including the traditional political parties in a transversal way tried to put sticks in the way, but in the end the center-left political parties were alienated with the new project, leaving only the right and the extreme right in the defense of Pinochet's Constitution.

Modern constitutions originated after violent struggles in which the dominated defeated the dominators. This was the case of the United States of America and then France, whose constitutions have been models for the rest of the world, then Mexico and the Soviet Union. These constitutions, like those that followed in Latin America and other parts of the world, were not perfect because they only declared rights, but did not guarantee them, and even workers were not recognized as equal subjects of rights, discrimination based on race was allowed and women's rights were denied, except in the case of the Soviet Union, which emphasized labor rights more than political rights. Finally, with the creation of the United Nations, a substantial change began that gradually expanded the recognition of rights for all. It was not until the end of the twentieth century that economic, social and cultural rights acquired the same status as civil and political rights, in an ongoing universal development [24].

The Chilean constitutional proposal constituted a substantial change in constitutionalism, and its merits are manifold. Both in its origin and in its content. We know that perfection does not exist and that everything can be improved, however, there is no other constitutional proposal in the world as advanced and broad as this one, nor that reflects reality as this one did. Of course, as it originates, without civil war, then it is parity, it recognizes the native peoples, it declares without extenuations the guardianship of the State over human rights and guarantees them, it grants protection to all living beings, it incorporates the protection of the environment as the essence of the State, it establishes democratic participation in all political, cultural, social and economic activities, it clearly declares that the State of Chile will maintain relations with other States and with international organizations based on the respect of the law and international conventions. It has enshrined essential rights such as health, education, recognition of domestic and care work, the right to housing, adequate food, the human right to water and sanitation, and the right to live in safe and free of violence environments.

The Chilean constitutional proposal constituted a substantial change in constitutionalism, its merits are multiple. Both in its origin and in its content. We know that perfection does not exist and that everything can be improved, however, there is no other constitutional proposal in the world as advanced and broad as this one, nor that reflects reality as this one did. Of course, as it originates, without civil war, then it is parity, it recognizes the native peoples, it declares without extenuations the guardianship of the State over human rights and guarantees them, it grants protection to all living beings, it incorporates the protection of the environment as the essence of the State, it establishes democratic participation in all political, cultural, social and economic activities, it clearly declares that the State of Chile will maintain relations with other States and with international organizations based on the respect of the law and international conventions. It has enshrined essential rights such as health, education, recognition of domestic and care work, the right to housing, adequate food, the human right to water and sanitation, and the right to live in safe and violence-free environments, the right to property, the right to be informed, the right to political, democratic and economic participation, among others [25].

In education, the proposed convention established a series of principles inspired by existing instruments of international law, such as the following:

2.1 Education system

Article 36 of the proposed new Constitution, in its chapter on Fundamental Rights, enshrines 8 paragraphs on the structure and functioning of the education system. The norm begins by alluding to its definition: "The National Education System is made up of the establishments and institutions of kindergarten, basic, secondary and higher education, created or recognized by the State. It is articulated under the principle of collaboration and has as its center the learning experience of the students".

Along with this, several principles are also detailed, which must be present within this system, strengthening elements such as the National System of diversity of artistic, ecological and cultural knowledge, as well as the autonomy of indigenous peoples and nations to develop their own establishments, within the framework of the law that regulates the system. It also states that establishments may not discriminate in their access, prohibiting, in addition, and as is the case today, all forms of profit. It also states that "The State shall provide additional opportunities and support for people with disabilities and those at risk of exclusion".

2.2 Public education

Within the same article 36, in its last paragraph, the role of public and state education is directly alluded to, through elements that define a more active State and articulator of a public education system. "The State shall articulate, manage and finance a Public Education System, of a secular and free nature, composed of state establishments and institutions of all educational levels and modalities. Public education constitutes the strategic axis of the National Education System; its expansion and strengthening is a primary duty of the State", states the norm. To this is added the role of the State in financing this system: "The State shall finance this system permanently, directly, pertinently and sufficiently, through basal contributions, in order to fully and equitably comply with the purposes and principles of education", it states.

Jesús Redondo, an academic at the Faculty of Social Sciences of the University of Chile and an expert in educational issues, explains that this article generates an

epistemic change in education. "There are many changes regarding education. It ceases to be a mere privatized public service and becomes an authentic social right. The State assumes its obligations to the right to education".

2.3 Freedom of education

Article 41, meanwhile, refers exclusively to freedom of education, a right enshrined in most of the world's constitutions, including the one that currently governs the country. The norm is divided into three subsections that define this freedom as a fundamental right. "The Constitution guarantees freedom of education and it is the duty of the State to respect it. This includes the freedom of fathers, mothers, parents and guardians to choose the type of education of their children, respecting the best interests and progressive autonomy of children and adolescents".

Together with this, the same article establishes the right of teachers to teach: "Teachers and educators are entitled to academic freedom in the exercise of their functions, within the framework of the purposes and principles of education", the article states.

The novelty of this norm is that this freedom must respect the interest of the students, a principle that was not enshrined in the current constitutional text.

2.4 Higher education

Article 37 expressly refers to the functioning and development of higher education, starting with a new element: the constitutional consecration of the principle of free education for students of state universities and those private universities determined by law. "The admission, permanence and promotion of those who study in higher education shall be governed by the principles of equity and inclusion, with special attention to historically excluded groups, excluding any type of arbitrary discrimination. Higher education studies, leading to degrees and initial academic degrees, will be free of charge in public institutions and in those private institutions determined by law", states the norm.

Along with this, it also defines what is understood by the higher education system and who comprises it: "The Higher Education System will be made up of Universities, Professional Institutes, Technical Training Centers, training schools of the Armed and Security Forces, in addition to the Academies created or recognized by the State. These institutions shall be governed by the principles of education and shall consider local, regional and national needs. All forms of profit shall be prohibited" [26].

Finally, another clause reinforces the concept of state public education: "State institutions of higher education are part of the Public Education System and their financing shall be subject to the provisions of this Constitution, and shall guarantee full compliance with their functions of teaching, research and collaboration with society".

2.5 Ecological education with a gender perspective

The environment and the gender perspective are two elements that cross transversally the different chapters of the proposed new Constitution. And, in this line, they are not absent in the norms on education. Thus, Article 39 establishes its ecological function: "The State guarantees environmental education that strengthens the preservation, conservation and care required with respect to the environment and nature, and that allows the formation of ecological awareness", states the norm.

Article 40 establishes a gender focus: "Every person has the right to receive comprehensive sexual education that promotes the full and free enjoyment of sexuality; sexual and affective responsibility; autonomy, self-care and consent; recognition of the diverse identities and expressions of gender and sexuality; eradicates gender stereotypes, and prevents gender and sexual violence", states the norm.

This proposal was rejected in bloc by the citizens last September 4.

3. Right to education and content

It is obvious that it is not enough to argue that the right to education is recognized because there are norms that establish it, whether of constitutional or legal rank. Nor is it enough for a State to have an abundant budget dedicated to the development of education, whether public or private, free or paid, but with a State policy of quality and equal for all, therefore, non-exclusive. But its contents should also have a relationship between content and democracy. UNESCO analyzes this relationship in the perspective of promoting a true exercise of the right to education that includes Education for Sustainable Development, intercultural education and education for democracy.

4. Higher education today

How can we define what a university is and what we can understand as a University of Excellence, it is the one that combines in a balanced way the functions of teaching, research and extension. In the case of Chile, only five of the sixty universities that exist in the country meet this fundamental requirement, various indicators tell us about this inequality. These are Universidad de Chile, Universidad Católica de Santiago, Universidad de Concepcion, Universidad de Santiago and Universidad Austral. This phenomenon can be seen in practically every country in the world.

In the case of Chile, a review of university budgets shows that those universities that carry out teaching, research and extension functions invest twice the number of full time and doctoral degree academic resources per student. If a comparison were made between each of the indicators in the research universities, the other universities that concentrate 28% of the student body according to a CIES study, this gap would increase the difference between indicators by five or seven times more". (These indicators have always positioned the University of Chile in the best places in the standardized scores of quality measurement, today this university occupies the ninth place in Latin America and the 400th place in the world, far away from the other universities in the country).

5. The problem of education

In the case of Chile, regarding education, both in the LOCE[1] and in the LGE, firstly, students since 2006 demanded equality and quality in education, and free access to it, so their request for the repeal of the LOCE came into force in 2009, thanks to the general education law that repealed it.

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[1] https://www.bcn.cl/leychile/Navegar?idNorma=30330.

Currently the student demands are regarding higher education, where they demand a greater coverage in money for those who do not have greater economic resources, including the middle class that is also affected and being this the one that mostly aspires to higher education.

The recurrent problem is the lack of resources provided by the state to be able to follow these higher education studies, or the resources provided by individuals [27] (banks, commercial houses, etc.) indebt the middle classes and lead to an economic tie once the studies are finished, considering also that the income in many professions is insufficient. The state dissociates itself from its obligation, excusing itself that this education is not compulsory, so it only provides coverage for basic and secondary education in public establishments where there is consensus that it does not prepare students to enter university life and is the cause of inequalities. According to the OECD, the Chilean system generates a division between rich and poor from the classroom. Perhaps the most convincing evidence for Chile in this aspect (…) are the results of the standardized tests that faithfully reflect the economic stratification of the same, living in Chile a hyper-segregation…" [28].

According to the rectors of public universities and coinciding with the OECD, the Chilean Educational System is one of the most expensive in the world and the most unequal in learning. It is inferred from the reading that an education has been built for the rich and another for the poor (this data is in the different statistical yearbooks that can be investigated and with the reading of these can be validated the affirmation of the previous paragraph, then we can consult the following institutions: Mineduc, National Institute of Statistics and Universities, among other research institutions).

Undoubtedly, education financing is a serious problem everywhere. In Chile, more than 85% of the investment in higher education comes from families, which compares with 30% on average in the OECD and less than 15% in some European countries.

Compared to other OECD member countries, Chile has the highest relative cost in higher education, considering that the average value of tuition fees represents 41% of GDP per capita. It cannot be refuted that higher education fees in Chile are high and that their weight is rooted in the family" (I will not go into describing what the state-backed credit (CAE) has meant for the family, which has 25% of university students indebted and have left the university with no return, (as an anecdotal fact, the rate that graduates in the US is 16% of those who enter), and also gave the intermediary bank the action of operating the credits and internal taxes to pursue this moratorium, and as a precedent worthy of Ripley, the state has repurchased from the bank 40% of the overdue portfolio. Business is business).

It can be inferred that the prevailing economic model has been more concerned with being efficient and effective in profit in the technical sense of the holder, than in the actual result of education.

The Organization for Economic Cooperation and Development (OECD) states that in Chile:

"Chilean education is influenced by an ideology that gives undue importance to market mechanisms to improve teaching and learning" investment in education in terms of financial and human resources has been very high compared to before the 90's, however, it has not produced the results expected by the community and the needs of Chilean society" [29].

Behind the problem and part of it is the neoliberal ideology that constitutionalized its maxims, which is evident in Chapter III of Decree Law No. 3464, "Of the Constitutional Rights and Duties", in Art. 19 No. 10 and 11 where the value is placed on the freedom of teaching, the business of education over the right to it. This chapter marginalizes

the state responsibility in matters of rights, which translates into a lack of guarantees so that citizens are defenseless against the abuses of the AFP, the ISAPRES, the private U's and the business organizations. It is this legal-legal constellation that "regulates" the system, and includes the General Education Law (2009, which replaces the LOCE), the result of the 2005 conflict that once again demonstrated how the Chilean institutional traps (Binominal System, Qualified Quorum Laws) only visualize a part of the existing interests in our country and finally, even though the legislation prohibits universities to profit, their owners historically endowed with tremendous impunity. Therefore, it can be argued that one of the problems of education in general is precisely profit.

6. Central problem of current educational institutions: the absence of the state

In Chile, the State contributes 56% of the cost of education and families 44%. In OECD countries, the State contributes 85% and families 15%. However, many institutions profit from the State's contribution. In Chile, education is one of the most expensive in the world. At the university level, the cost of education is 72% of the Per Capita Income. In OECD countries it is 44%. From 1950 to 1973, public spending on education grew 10% annually. The military dictatorship brought public spending on education from 7% of GDP to 3%. In public schools 85% of students come from the poorest 60%. In private schools more than 60% of students come from the richest 20%.

In Chile the tax burden is 19% of GDP; in OECD countries it is 38%. Therefore, there is a great margin to obtain public resources.

Chile has the highest military spending budget in Latin America. While it spends 0.3% of GDP on higher education, it spends 3.6% on defense.

Chile has the highest per capita income in Latin America, but the worst distribution of this income. While the region assumes public education with a poorer income, the State in Chile requires families to do so.

Chile is 7 times richer than in the 60's when public education was financed.

Chile exports 80 times more copper than in the 60's when public education was financed.

The student population today is a little more than double what it was in the 60s, and in higher education it is 10 times more.

To bring public spending to 7% of GDP, only 7 billion dollars are required. Less than mining profits.

The nationalization of copper gave the country between 1971 and 2009 much more than all private companies with income tax (including banks, AFP, Isapres, Corporations, Insurance, etc.).

7. Society and law in today's university

National universities, both public and private, have yet to fulfill their task in the formation of professional citizens, that is, people who receive a human rights-based education. This need arises not only because of the enormous development of this branch of law and of knowledge in general, but also because our country has suffered in the flesh the consequences of a lack of cultural level in this area.

Chilean universities are in a position to carry out activities aimed at teaching and research inspired by humanism, and particularly by human rights, which implies

strengthening the teaching of their own professors, notwithstanding the fact that even in some private universities censorship is practiced in the inclusion and selection of professors.

From this point of view, the Chilean university could make an effort to sensitize as many people as possible to these tasks, positioning human rights in the university, awakening interest in greater active collaboration by all to help society and the State to adopt attitudes, mechanisms and standards to promote human rights, including diffuse interests and prevent their violation. In the field of education, the country has not been able to implement the cross-cutting human rights objectives defined in the education law, while at the university level there is still no in-depth development of these rights or efforts for peace education, which cannot serve, in any case, as an excuse to allow - as if it were someone else's problem - the maintenance of an educational model based on profit and creating more inequality.

To persist in making up the current model of education would be similar to the attitude of the nouveau riche who believe that it is enough to buy new furniture, nice objects and libraries to appear modern and cultured, or it can also be assimilated to the trauma of the raped child: not recognizing the fact, living with the anguish of the past without facing the pain.

It is not enough that the government manages to dominate the macroeconomy, increase exports and per capita income, not even that it manages to eventually put an end to hard poverty; all this may be part of the material wealth, which could satisfy some people. However, there will be no modernity in Chile if the laws remain in force and the production of acts that disregard fundamental rights, such as education, health, social security and work. The essence of modernity resides in a form of State that is characterized by the people exercising sovereignty, the authorities respecting human rights in their entirety, and in the effective exercise of human rights, which is not achieved within the framework of the current Political Constitution.

To consider human rights in their integrality seems abstract and not very generalized, and nevertheless modernity is properly such only when the full exercise of all rights by all is achieved and in them the right to education is fundamental, bearing in mind that the State of Chile, in addition to the rights recognized in the current Constitution, has ratified the Covenant on Economic, Social and Cultural Rights, which provides that the State of Chile, in addition to the rights recognized in the current Constitution, has ratified the Covenant on Economic, Social and Cultural Rights, which provides that the State of Chile must respect the rights recognized in the current Constitution, and in particular the right to education. Social and Cultural Rights, which provides that the State must provide free education, including higher education, since Article 13 (c) states that "Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education", its non-compliance constitutes a violation of the international treaty.

With the current system of education, the middle class has become increasingly indebted, to the point that it is becoming a slave class to the financial system [30].

8. Right to education in international law

> *"... Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms..."*

Article 26 [2] of the Universal Declaration of Human Rights.

2. The States Parties to the present Covenant recognize that, with a view to achieving the full realization of this right:

Article 26 [2] of the Universal Declaration of Human Rights.

The International Covenant on Economic, Social and Cultural Rights provides in Article 13:

1. "The States Parties to the present Covenant recognize the right of everyone to education. They agree that education shall be directed to the full development of the human personality and the sense of its dignity and shall strengthen the respect for human rights and fundamental freedoms. They further agree that education shall enable all persons to participate effectively in a free society, promote understanding, tolerance and friendship among all nations and all racial, ethnic or religious groups, and further the activities of the United Nations for the maintenance of peace.

2. The States Parties to the present Covenant recognize that, with a view to achieving the full realization of this right:

   a. Primary education shall be compulsory and available free to all;

   b. Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the progressive introduction of free education;

   c. Higher education shall be made equally accessible to all, on the basis of individual capacity, by every appropriate means, and in particular by the progressive introduction of free education;

   d. Fundamental education should be encouraged or intensified as far as possible for those persons who have not received or completed the whole period of their primary education;

   e. The development of the school system should be actively pursued at all levels of education, an adequate system of scholarships should be introduced, and the material conditions of the teaching force should be continuously improved.

3. The States Parties to the present Covenant undertake to have respect for the liberty of parents and, when applicable, legal guardians to choose for their children or wards schools, other than those established by the public authorities, which conform to such minimum educational standards as may be laid down or approved by the State, and to ensure that their children or wards receive such religious or moral education as may be in conformity with their own convictions.

4. Nothing in this article shall be construed as restricting the freedom of individuals and bodies to establish and direct educational institutions, provided that the principles set forth in paragraph 1 are respected and that the education given in such institutions conforms to such minimum standards as may be prescribed by the State."

9. A problem not overcome

Public university education in Chile was free until 1990, when the Pinochet regime enacted the Organic Constitutional Law of Education No. 18.962 (LOCE), which was published in the official gazette of Chile on March 10, 1990, the same day of the end of the military regime, law that was enacted in the exercise of power of Augusto Pinochet Ugarte, on March 7 of the same year. It was repealed in 2009, by the General Education Law (LGE), during the government of President Michelle Bachelet.

The International Covenant on Economic, Social and Cultural Rights was promulgated on April 28, 1989 and published in Chile's official gazette on May 27, 1989. According to the provisions of Article 5 of the Political Constitution, the aforementioned Covenant was part of the Constitution, so that the right to free public education was guaranteed, since the progressive implementation of free education had been achieved prior to the Covenant, so that its subsequent elimination constitutes a disregard and infringement of the law and of the aforementioned international Covenant.

International law does not require a specific form for the reception of the treaty, it only requires the States that commit themselves to fully comply with the Treaty. The different procedures of incorporation put into practice in the different States, as De Visscher maintains, do not alter the fact that treaties constitute both a source of Internal Law and of International Law. And the only requirement of International Law is that the treaty be respected and complied with, for which each State may adopt the necessary and useful measures. Chilean legislation incorporates conventional international law through the procedure of promulgation and publication of the Treaty in the Official Gazette. Indeed, Article 54 of the current Political Constitution provides that "The Congress has exclusive powers: 1) to approve or reject the International Treaties submitted to it by the President of the Republic prior to their ratification. The approval of a treaty shall be subject to the procedures of a law".

The same constitutional regulation contemplates in its Article 75 that "The promulgation must always be made within 10 days, counted from the time it is appropriate. The publication shall be made within five working days following the date on which the promulgating Decree is fully processed". Article 5 of Decree Law 247 of 1974, establishes a mechanism for the incorporation of the treaty into the legal system, stating that "such treaty shall be promulgated by Supreme Decree of the Ministry of Foreign Affairs", which shall order its compliance and that it be carried into effect as a law of the country and that "such Supreme Decree as well as the text of the treaty be published in the Official Gazette".

The promulgation and publication of international conventions give them full force and effect, which translates into their full incorporation into the domestic legal system. The Courts may directly apply the provisions of such conventions, without prejudice to consider the rights recognized therein as principles of law and as jus cogens norms, as the case may be.

When the conflict between national and international norms cannot be resolved through interpretation, then the courts have invariably indicated that international law takes precedence.

In the specific case of International Covenants, the conciliation between International and National Law is inevitable and obligatory for the Courts, by virtue of the provisions of Article 5 paragraph 2 of the Political Constitution of 1980, which provides that the "exercise of sovereignty recognizes as a limitation the respect for the essential rights that emanate from human nature", rights that are - in turn - recognized in detail in the International Covenants mentioned above.

The Political Constitution of 1980 recognizes and guarantees the exercise of many of these human, civil, political, economic, social and cultural rights, in particular in articles 1, 4, 5, 10, 12, 13, 14, 15, 19, 20, 21, 45 and 76. These constitutional norms find their referent in those of the Covenants. Indeed, the duty of the State to recognize the freedom and equality of all, which is enshrined in Article 1 of the Constitution, is recognized in Article 2 of the Covenant on Civil and Political Rights and in Article 2 No. 2 of the Covenant on Economic, Social and Cultural Rights. This exercise can be done with each of the human rights recognized in the Constitution.

Eventually, national law, including constitutional law, could collide with the Covenants, but such conflict must necessarily be resolved in favor of human rights, not only because of the binding nature of International Law but also because the Constitution itself, in Articles 1 and 5 of the Constitution, first provides for the foundational nature of human rights and then, the limitation to the powers of the authorities instituted in the Constitution, in the respect for the essential rights that emanate from human nature. Notwithstanding the foregoing, the Chilean courts have made efforts to ensure that the international standard is applied in the country, making conciliatory interpretations to that effect.

Of course, the current Political Constitution contains some norms of public law that establish contradictions with those of international conventions, and the way to solve them is not by judicial means but by an effective process of constitutional and legal transformation based on the exercise of the right to self-determination of the people, enshrined, for example, in the International Covenants on Human Rights, in accordance with the obligations stipulated in the second articles of these legal instruments, nowadays in force as Chilean internal laws.

10. Constitutional status of the covenants

The current Political Constitution contains a series of norms related to human rights that give a different normative context to their validity. Indeed, Article 5, paragraph 2 of the current Constitution recognizes that "It is the duty of the organs of the State to respect and promote those rights guaranteed by this Constitution, as well as by the International Treaties ratified by Chile, which are in force". In this way, the human rights recognized in the international treaties ratified by Chile are incorporated into the constitutional sphere, thus giving content to the sentence of the aforementioned paragraph 2 of Article 5, which states: "The exercise of sovereignty recognizes as a limitation the respect for the essential rights that emanate from human nature".

The foregoing is reaffirmed by the provisions of Article 19 No. 26, which establishes the certainty that the legal precepts that by mandate of the Constitution regulate or complement the guarantees that it establishes or that limit them in the cases authorized by it, may not affect the rights in their essence, nor impose conditions, taxes or requirements that impede their free exercise". Thus, the fundamental bases of the Constitution recognize the human rights enumerated in the Constitution itself, as well as those established in international treaties ratified by Chile and in force, and therefore no legal or constitutional norm may affect them in their essence.

The legal solution in case of confrontation between two constitutional norms is given by the fundamental bases of the Constitution itself, that is to say, the

constitutional norms that recognize human rights are necessarily preeminent, since these norms constitute the declared foundation of the Constitution, the basis of institutionality. In other words, constitutional norms that disregard human rights enshrined in the Constitution will be a dead letter.

Thus, the constitutional rank of the human rights included in the treaties in force is evident from the constitutional texts cited. Moreover, this character is reaffirmed by the certainty that the legal precepts that - by mandate of the Constitution - regulate or complement the guarantees that it establishes or that limit them in the cases in which it authorizes it, may not affect the rights in their essence, nor impose conditions, taxes or requirements that prevent their free exercise as provided in Article 19 No. 26. Under these conditions, norms that conflict with or disregard in their essence the human rights "guaranteed by this Constitution, as well as by the international treaties ratified by Chile, which are in force", shall be null and void and unenforceable.

11. State duty to respect and promote human rights

All organs of the State, of any of the Executive, Legislative or Judicial powers, must act in accordance with the provisions of Article 5 of the Constitution. Thus, various provisions that outside this context would appear to be restrictive of human rights can only be interpreted systematically within the context given by these international human rights norms; such interpretations will therefore have to be compatible with this context. Thus, for example, the Covenant on Civil and Political Rights, the Covenant on Economic, Social and Cultural Rights, the Conventions against Torture, etc., will prevail over any other legal or constitutional norm that may undermine them. In the same way, the Courts of Justice should not be able to hide behind an alleged exclusive competence of the Executive, when human rights are at stake. This essential principle of modern law could be violated by an alleged preeminence of the national norm due to procedural problems, which, in any case, is resolved by national law.

12. Pre-eminence of the international norm

The incorporation of a treaty into domestic law may present doctrinal conflicts with respect to its consequences on the previous domestic law and on the effect that the law derived from the same treaty may have on domestic law. However, in matters of human rights the fundamental criterion is found in the Political Constitution itself, in the Bases of the Institutionality, that is, if the purpose of the Fundamental Charter is to protect the individual and for this purpose it establishes a series of duties of the State and guarantees for the rights of individuals, the international norms that are compatible with this mandate will take precedence over any other national norm.

The Treaty that modified or repealed previous laws dealing with the same subject matter according to Articles 32 N° 17 and 50 N° 1 of the Constitution, in which the participation of the co-legislating bodies that determine the applicability and incorporation into domestic law of the international treaty, giving preeminence to the international norm, is involved.

The problem arises with respect to laws that require a special quorum, different from the one required to approve a treaty as provided in Article 50 N° 1 of the Constitution. However, Article 50 N° 1 of the Constitution does not establish any distinction in this matter, and therefore no distinction should be made. Thus, the incorporation of international norms made in accordance with the Constitution produces the inapplication of the internal norms that contravene them.

With respect to the relationship between international norms validly incorporated into domestic law and subsequent laws, they are governed by the principle of good faith and compliance with the commitments acquired, which are principles of jus cogens codified by the Vienna Convention on the Law of Treaties, so that compliance with treaties cannot be altered by a law or a subsequent constitutional reform, a principle set forth in Article 27 of the Vienna Convention on the Law of Treaties which determines: "a party may not invoke the provisions of its domestic law as justification for non-compliance with a treaty". Thus, when faced with a valid treaty incorporated into domestic law and a subsequent valid domestic law, the ordinary judge must give preferential application to the treaty, otherwise the judge would fall into breach of the domestic legal system and its rules of application and in matters of human rights, in breach of the provisions of Article 5 of the Constitution, in addition to incurring the State's international responsibility. The Commission of Studies of the New Constitution itself, in its session No. 367 of May 1978, in recognizing the superiority of treaties over the law, taking up what had already been expressed by Commissioners Alejandro Silva Bascuñan and Jaime Guzmán Errázuriz in the session of June 20, 1974, recognized the preeminence of the international norm. Furthermore, the non-derogability of the treaty by law is an essential characteristic of its incorporation into the national legal order and this does not mean the nullity of the subsequent law contrary to the treaty, as pointed out by the Commission of Studies of the New Constitution in session 371, page 2587 and 2588.

13. International treaties in force in Chile

The international treaties in force in Chile incorporate into the Political Constitution rights that are not expressly recognized nor do they have real and effective guarantees. For example, the right to work recognized in Article 6 of the International Covenant on Economic, Social and Cultural Rights (ICESCR), the right to strike (Article 8 of the ICESCR), the right to free education at all levels (Article 13 of the ICESCR), etc., are not expressly guaranteed in the Constitution.

14. Legislative obligation

The aforementioned Article 5 imposes on the legislative power the duty to adopt legislative measures to make effective the rights recognized and guaranteed in the international treaties incorporated in the Constitution, since many of these rights, particularly those recognized in the International Covenant on Economic, Social and Cultural Rights, require the adoption of legislative and other measures to make them effective. The current Constitution in Chile is inspired by a doctrine that seeks to subtract social power from the State, accentuating its subsidiary role and leaving social rights as mere declarations without constitutional guarantee, in addition without organic or functional relationship with democracy.

15. Objectives of postgraduate programs in Chile

Bearing in mind the factual and normative context, postgraduate degrees can be developed with the objective of providing students with superior competencies and skills in the corresponding scientific field, which allow them to: master the respective phenomenon in general with a high level of depth; specialize with advanced theoretical and practical knowledge in the subjects related to the mention they pursue; obtain highly qualified oral and written communication skills for a professional and academic environment that will allow them to contribute to improving the quality of life of their environment.

In the same sense, the Teaching Methodology should focus on the leading role of the student, providing him with the methodological tools that allow him to develop an autonomous academic work, directed and oriented by the professors, achieving to establish a graduate profile with superior competences and advanced knowledge of the phenomenon of his specialty, both in substantive and procedural aspects. The graduate will be able to identify, study and solve science problems of a complex nature, design strategies, and communicate them adequately through oral and written means, being able to design projects and write publications, develop teaching in higher education institutions, join public or private institutions, and advise them in highly complex matters. Even more so by participating in civil society organizations in what is called "linking with the environment".

16. Conclusions

When the norms of the International Covenant on Economic, Social and Cultural Rights come into force, the right to free education is enshrined as an obligation of the State, and at the national level in particular in those States that recognize its constitutional rank, so that the validity of this International Covenant imposes on the State the obligation to finance free education at all levels, including higher education, and obviously such education cannot but be of quality. As for its content, it must necessarily be comparable with the international norms that oblige the State to promote and respect human rights.

The overcoming of structural problems must be thought of in the light of an epistemological vision that overcomes iuspositivism as well as iusnaturalism, since the emergence of social movements expresses new demands for rights that today appear in many political constitutions as mere speeches without efficient constitutional guarantee and without the State assuming its responsibilities as reality confirms. Taking Boaventura de Sousa Santos' ideas, three crises to be solved by education in general and the university in particular are perceived: "... the crisis of hegemony, of legitimacy and institutional..." [31]. The three crises cannot be solved only by means of the massification of this public good, no. Here tectonic modifications are needed. Tectonic modifications are needed here, understanding that the tasks of the university of the 21st century cannot be those of the university of the 20th century. Without discarding the others, of course. Furthermore "...for peripheral and semi-peripheral countries the new global context demands a total reinvention of the national project, without which there could be no reinvention of the university (...) In the 21st century there will only be nations to the extent that there are national projects for the qualification of insertion in the global society..." .

Higher education more than any other education must assume the paradigm of conceiving its task as an open invitation to face the new with the new, the struggle for the definition of education; schools and universities is open and in the streets, where fundamentally, the first lines are written, and to consider it as a source of changes is not to remain a prisoner of the street, but to be able to understand the democratizing message of the young citizens. This is all the more reason for a graduate education that assumes a student with superior capabilities.

The student will be able to identify, study and solve problems of science of a complex nature, design strategies, and communicate them adequately through oral and written means, being able to design projects and write publications, develop teaching in higher education institutions, join public or private institutions, and advise them on highly complex issues. Even more so by participating in civil society organizations in what is called "linking with the environment".

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Perspective Chapter: Peer Observation of Teaching in Phygital Communities of Inquiry

Phil Quirke and Aysha Saeed AlShamsi

Abstract

The disruptions caused by the COVID-19 pandemic have affected many aspects of teacher training programs, which are crucial for informing research in higher education, including reflective peer observation of teaching (POT). The higher education community has adapted to this new normal and begun using phygital (blended physical and digital) spaces effectively. This requires practitioners to adapt new methodologies and hybrid approaches, which pave the way for a new future of learning in a new phygital environment. This chapter describes the implementation of a phygital community of inquiry (CoI) by preservice teachers in an undergraduate early-years education program in the United Arab Emirates. This chapter presents the authors' observations of preservice teachers' practices during their internship to describe them against the experience of higher education in the United Arab Emirates. Incorporating the principles of POT and CoI requires strong institutional support if creative technologies are adopted to react to the current state of practices. Specifically, the POT principles involved in CoI should expand the phygital approach to improve the reflective practices of preservice teachers. Moreover, models relevant to specific programs should provide adequate instructional support, materials, and training for preservice teachers to allow their optimal investment of POT in phygital spaces.

Keywords: community of inquiry, peer observation, phygital communities of inquiry, teacher education, higher education institutions

1. Introduction

The COVID-19 pandemic disrupted education systems all over the world, but institutions ensconced in traditional practices and hesitant to incorporate technology were affected to a greater extent. Isolation and social distancing became mandated, which disrupted physical classrooms and forced a shift to hybrid teaching and learning for faculty and students in all UAE HEIs [1]. This shift was intended to enable flexibility in teaching and learning while maintaining the institutional expectations [2]. These flexible and novel approaches to educational practice still require good learning outcomes and the meeting of expectations. While United Arab Emirates (UAE) higher education institutions (HEIs) were impacted, one UAE HEI was uniquely well positioned to transition to a virtual format, as it had been in the

vanguard of nations in implementing hybrid learning before the pandemic. Despite this prescience, which limited some of the chaos arising from the pandemic, some institutions were nevertheless affected by staff shortages, because of the huge cuts as a consequence of the COVID-19 [3]. Without action, a lot of adjunct faculty are likely to go and funding in many universities is becoming very precious with many research projects potentially in jeopardy [3]. As a consequence, there was a need for speedy and creative thinking to operationalize the sudden shift of practices to online platforms. Various solutions are documented and discussed in the recent literature to support preservice teachers' practices [4]. Students and educators are encouraged to implement new approaches to teaching and learning to ensure social and cognitive interaction [2], for example FlipGrid which is a tool that is used primarily for hosting video discussions and peer-to-peer communication especially when tasks are assigned by educators [5]. It has been proven that FlipGrid is a useful tool for practicing oral communication and discussion [5]. Due to the COVID-19 restrictions, teacher education programs have been affected and creative solutions to effectively implement lesson observations were needed. One creative solution was to implement peer observation of teaching (POT) in an online context. POT is a process by which a peer observes the teaching of another colleague with an intention to provide constructive feedback [6].

This chapter describes an initiative by the Education Faculty at the HEI involved in this reflective chapter to record preservice teachers' experience of peer observation of teaching (POT) and the establishment of phygital communities of inquiry (PCoI). Teachers' use of Flipgrid, a social learning platform tool, was key in the physical and online presence of students, and it helped ensure reflective practice. More importantly, this chapter illustrates the importance of educators and students working together in a community of inquiry (CoI) using online communication platforms to facilitate rigorous teaching and learning practices and their professional development in order to continue meeting the program's expectations.

2. Background

Before the onset of the 2020 pandemic, the HEI involved in this reflective experience had transitioned to hybrid learning. This was largely possible as a result of the institution's preexisting use of technology to create blended learning, e-portfolios, learning management systems, assessment, digital library services, intelligent learning systems, digital services, and relevant infrastructure [7]. The UAE Ministry of Education (MoE) in collaboration with HEIs, provided unique regulatory solutions to ensure the continuity of the teaching and learning process [1]. During the transition to hybrid teaching, this HEI supported the faculty and students by transforming its 'Digi-campus' and maintaining ongoing professional development and the sharing of best practice.

Students play an important role in the HEI involved in this reflective experience community. For the education faculty, student teachers quickly understood that the learning practices that would be necessary during the pandemic differed from the ordinary learning practices and could be used to supplement their future professional development. Student teachers and their instructors' gradual transition to the new normal after the pandemic lockdown took place in both physical and digital spaces. Before the onset of the pandemic, student teachers completed their teaching practicum (TP) at schools, studied face-to-face, and took some online courses. Their

mentor teachers visited them in schools and provided immediate and constructive feedback. The practice of combining the use of both online and on-site spaces creates what is referred to in this article as phygital learning environments.

To give the reader a clear picture of the context, the physical learning space pre-pandemic and the digital learning space during the pandemic are briefly described here.

The physical learning spaces in each of the five campuses where the Bachelor of Education Early Childhood program is offered at the HEI consist of classrooms both at the HEI campus and at the early childhood schools, kindergartens and nurseries, which host the teaching practicums, as well as three unique learning spaces. The first of these is a model early years classroom which is equipped with cameras and microphones and set up as an ideal learning space for young children. The second is an observation room, which is linked to the model classroom by a one-way mirror so that observers can see what is happening without disturbing the classroom environment or the children and student teachers' learning. This observation room also hosts the recording equipment, which is used by student teachers and their faculty to review teaching performance in the model classroom. The third space, which in some campuses is combined with the observation room, is the learning resources room, which is stocked with all the materials students teachers and faculty may require for the design and preparation of teaching materials. The room includes several tables, where student teachers can prepare their lesson plans and teaching materials in collaborative groups. These three rooms together are called the Education Hub, because they act as a community hub for local schools who can bring their children in for master teacher demonstrations or student teacher lessons as a break from the school routine. Schools can also host professional development sessions with their teachers in the Education Hubs, which thereby act as a catalyst for strong college-school partnerships that encourage joint research.

Naturally, when the pandemic broke out, the Education Hubs closed down as the country went into lockdown. However, the three federal HEIs in the UAE with the support of the MoE were able to ensure the continuity of teaching and learning through flexible but rigorous regulations [1]. Therefore, student teacher preparation was not impacted by the loss of physical teaching practicum opportunities in the schools. The MOE allowed student teachers and mentor college tutors (MCTs) access to the virtual MS Teams platform, issuing codes for all student teachers and college faculty to the assigned schools and mentor schoolteacher (MST) classrooms. This allowed the HEIs to give MCT, MST and student teacher groups the opportunity to explore different ways to complete the required observations in the new virtual spaces. There were, of course, numerous challenges but the flexibility and determination of all involved ensured that no students' program duration was impacted and student teachers were able to graduate and progress according to their study plans, dependent on them demonstrating the competencies required to pass each practicum course. The HEI provided MCTs, MSTs and student teachers with Online Teaching Practicum Guidelines, which included detailed information on the roles and responsibilities of each party, outlined the flexibility each MCT/MST/Student Teacher team had to assess student teacher competencies in each course and provided best practice examples gathered continuously from everyone's experience as they coped with the new virtual world of the pandemic lockdown.

The innovation and creativity witnessed along with the unique opportunities for learning to teach in an online environment provided a myriad of experiences, material, approaches, methods and techniques for both enhanced learning and teaching.

After three semesters and over 2000 virtual teaching practicum placements, schools and colleges returned to work face to face but with some pandemic restrictions still in place. These were gradually reduced, but everyone had to refamiliarize themselves with another new world where the best practices of the pre-pandemic physical world and the during pandemic online world could be combined in a new hybrid phygital learning environment. It is this new environment that is the context for this chapter.

As with traditional learning environments, the success of the new phygital learning environment and the transition to the new normal began with classroom implementation and authentic learning. At the same time as innovative approaches were being implemented by student teachers and their instructors, they still needed to face and solve specific challenges related to the issues created by the pandemic, such as the shortage of faculty [2, 3] and the appearance of COVID-19 cases among children, student teachers, and their mentor teachers, while completing their TP in the schools. Therefore, reflecting on the TP at the HEI involved in this reflective practice and the phygital model, integrating both physical and digital spaces, was pivotal to understanding the procedures and responsibilities of all parties when applying this new approach to students' authentic and innovative approaches to learning.

As this HEI had begun focusing on technology use and was implementing hybrid models even before the pandemic, the sudden transition to hybrid learning after the onset of the COVID-19 pandemic led to a new array of leading and managing learning and teaching in online communities. Geng et al. [8] refer to this as a blended or hybrid learning environment. While hybrid learning has been the most prominent means of delivery for higher education during the gradual transition to face to face learning, it presents certain specific challenges for students' effective learning and communication within the new context. In general, hybrid practices tend to have drawbacks, such as the lack of a real online community to ensure positive learning outcomes [9, 10] beside the issues that continued to arise as a result of the pandemic.

Student teachers faced multiple challenges due to the pandemic. Among the negative impacts was the lack of the community-based experiences they had been used to, which had ensured positive social and cognitive interaction among learners, peers, mentors, and instructors [11, 12]. Attempts to salvage this type of interaction prompted researchers to identify factors that could support successful online experiences [13, 14]. The CoI model was proposed to examine the quality of virtual learning experiences (VLE) [15, 16]. The contextualized practice of this framework integrates the student as a cognitive presence and the instructor as designer, facilitator, and instructional presence, together with a social presence as the construct of meaning by means of the maintenance of sustained communication that concretizes the community [2, 17].

Among the significant dilemmas faced at this time was that of ensuring sufficient, effective, and constructive feedback during the period of the student teachers' TP, despite the faculty shortages [18]. The idea of this approach was to solve issues creatively and innovatively, with the support of available resources and using creative methods. College mentor teachers (MCT) conducted four observations for year four student teachers, and the school mentor teachers (MST) observed the student teachers four times. The MST was able to complete their observations, but the MCT was unable to observe all assigned student teachers, due to the high number of observations involved and additional issues related to the pandemic, including faculty shortages and cases of COVID-19 among faculty and student teachers. Therefore, creative and innovative methodologies to utilize the available phygital spaces were needed. There was likewise a need for a community that could link physical and online

presences while ensuring critical thinking and rigor in practice. In summary, the need to develop a peer observation system that was able to withstand the disruption of the pandemic but could also facilitate teaching and learning within a community of inquiry was recognized.

3. Overview of teaching and learning within the context of UAE HEI

3.1 Peer observation teaching

The academic knowledge that students receive as a result of their college experience is invaluable when it is enhanced by authentic experience. Therefore, the evaluation or using peer observation of teaching is crucial for a clear understanding of teaching practices that substantiate academic and program's performance. Martin and Double identify six goals of peer observation: improving an understanding of personal approaches to curriculum delivery; enhancing teaching strategies; exchanging insights; expanding personal skills of self-reflection and evaluation; developing curriculum planning skills and collaboration; and identifying areas in teaching practice with particular benefit for next steps [19]. Recent studies highlight the importance of POT as a way of foregrounding the process of teaching and learning, improving the quality of classroom practices and making teaching visible to everyone [20, 21]. Ref. [21] suggest that POT provides firs-hand collegial support and the growth of teaching-related collaboration. To and Carless [22] highlight the value of peer evaluation in the transfer of knowledge into practice. Students' POT in teacher education programs forms part of a process in which student teachers observe other educators or colleagues teaching, using available resources. It is one of the main methods used for the evaluation of teaching. A previous study explains that POT assists in the development of reflective process and provides qualitative evidence and formative feedback to substantiate students' evaluation [5, 20]. Several benefits exist with respect to POT and its perspective. For instance, Van den Bergh et al. [23] reported that peers provide constructive feedback that has a crucial influence on professional development and critical reflections by the student and mentor teachers. In an earlier study, Bell and Mladenovic [24] found that POT enhances teaching quality and competencies as teachers gain confidence in their teaching methods, acquire new ideas, and share teaching methods and practices.

As discussed, the main purpose of POT is to improve practice and provide formative feedback for future improvement. In teacher education, peer observation can take three forms; (1) a management model, where the main goal of the observation is to evaluate the performance for quality assurance purposes; (2) a development model where the goal is to improve teaching and learning and overall classroom practices; and (3) the peer review model, where self-reflection is emphasized as a result of formative feedback. According to Gosling, the development model is for educational developers to observe practitioners to check the demonstration of competency, track teaching and assessment improvement [25]. Generally, the final purpose is to plan for action steps, which student teachers need to take, and to either pass or fail the performance. There is a level of confidentiality between the observer and the observed student that include detailed reports on the observed teaching performance, lesson plans, learning materials, etc. On the other hand, the peer review model includes teachers observing each other and students observing each other with a high level of engagement in discussion about teaching; self and mutual reflection. The goal is

to provide analysis, discussion, and elaboration on a wider experience of teaching methodologies. The evidence is what is shared among peers as it is a non-judgmental with highly constructive feedback. Similarly, teaching performance, lesson plans, and learning materials are observed; however, the goal is to inform the practice.

3.2 POT in the UAE HEI program

Online teaching and learning are essential components of the hybrid mode of delivery for higher education institutions. It is critical for faculty that standards are upheld throughout online and face to face teaching and learning. Therefore, POT is often conducted during the TP placement of preservice teachers who are enrolled in the HCT Early Childhood Education (ECE) program. Student teachers are always assigned to a MCT and an MST in their practicum courses, and peer observation is assigned as a formative task during the student teachers' experience in the schools. The observations by the MST and MCT are expected to form the performance assessment part of the practicum course. A similar approach is used in peer observation as an assignment, although there is no fixed number of POT observers [26, 27]. Thus, for example, an MST and a peer can both observe the student teacher's teaching.

During face-to-face classes and in online POT, students, mentor teachers, and their peers agree on a format for the peer observation. At the beginning of the practicum course, the instructor shares the course's TP booklet with the students and discusses all of the relevant expectations and tasks in detail. In addition, the instructor discusses the observation sheet and the feedback process that is to be expected in detail. Throughout the semester, student teachers shadow the MSTs and teach under their supervision to enable them to receive constructive feedback. Ideally, the MST meets with the student before and after the given lesson, and the MCTs receive the lesson plan a day before the observation, so that she can discuss the lesson with the student and send feedback before the observation. A feedback meeting should be implemented immediately after the lesson observation. No requirements are imposed for the pre-observation meeting. However, post-observation is mandatory in order to provide constructive feedback and to identify focal points and next steps in the student teachers' development. During the transition to the new normal and during the COVID pandemic and faculty shortage, the MCT assigned strong peers to complete two out of four lesson observations on their behalf. However, the MCT needed to ensure rigor in the observation practice, as will be discussed in the following sections.

Cosling's second and third model can be combined to ensure the validity and reliability of formative assessment practices in preservice POT and, additionally, can provide valuable qualitative evidence to support quantitative data and complete final summative evaluation. For this reason, we find it crucial to combine multiple models in our program.

3.3 Model of peer observation of practice in Phygital spaces

3.3.1 Theoretical framework: Community of Inquiry

The CoI model forms a three-dimensional pedagogical framework that is grounded in theories of teaching and learning in higher education [17]. After it was created, this framework evolved to incorporate broader perspectives of distance learning [13, 28]. The three constructs, namely, cognitive presence, social presence, and teaching presence, have remained stable and form contributions to maintaining a

strong virtual learning environment within the CoI model [2, 17]. They are described as follows:

- *Cognitive presence* refers to the learner's development of higher-order thinking skills and construction of meaning as they transition through four cyclical stages of inquiry and perform sustained reflection on their education experience [17]. These four stages are triggering, exploration, integration, and resolution. First, in triggering, the problem is identified, explored, and brainstormed, inviting further exploration and collaboration, after which ideas are generated and integrated, and are finally tested and implemented. Reflection forms an important part of CoI for a better cognitive presence.

- *Social presence* describes students' interaction and collaboration within a productive virtual social community [17]. Their open communication performance is facilitated by using a variety of tools and approaches to building group cohesion that encourage emotional reflective expression, where learners can better share values and personal impressions [13]. Social presence is a pivotal mediating variable between cognitive and teaching presence [28].

- *Teacher presence* describes the instructor's role and relevant leadership skills. Teaching presence refers to the design, facilitation, and direction of cognitive and social processes for an instructor to produce better learning outcomes. These affect students' satisfaction levels, perception of learning, and sense of community [29]. Teaching presence thus focuses on course organization, design methods and strategies, direct instruction, and discourse facilitation. The development and implementation of the framework over the years highlight the importance of this construct [29].

3.3.2 Relationship between CoI and professional learning communities: Designing POT in PCoI

The CoI emphasizes the importance of faculty development as a pivotal aspect for positive teaching outcomes. Where teacher quality is considered important, so the professional learning community (PLC) can be defined as the entirety of the organization where the CoI is located. Multiple definitions exist of PLC. However, in this chapter, we use a definition provided by Hilliard [30], namely, that "a professional learning community [is] made up of a leadership team and faculty members as a collaborative group who seek to improve the learning experiences for students through a shared vision" (p. 71). To achieve this goal, the quality of instruction and learning should be founded on the use of twenty-first-century approaches to assist with assessment, learning, and showcasing students' outcomes. A contextualized implementation of CoI indicated that female students lacked social presence in online learning communities of practice [25]. One key aspect here is the communication environment, which can be enhanced through the inclusion of social media [31]. Using an interpretive and qualitative approach, Bedford identified the benefits of adopting a virtual PLC, including relationship building, faculty and students engagement, and fostering shared learning. The design of a POT reflective platform within a PCoI requires effective, respectful, and professional conversation within a safe environment. Reports of POT within the online environment and its advances within a cross-institutional context are trending upward in the literature [27]. Here,

our adoption of the technology (Flipgrid) to facilitate this blended learning style for the students' benefit was also of interest. Chaturvedi et al. [32] ably illustrated this positioning, drawing on Kolb's Learning Theory, Mezirows' transformative learning theory, Jean Piaget, and John Dewey to demonstrate successful blending of learning within a phygital environment at their business school in India. In a recent study, Kleftodimos and Triantafillidou explored a creative approach to support students' participation and communication during online learning [5]. Their findings indicate that FlipGrid is a useful platform for online discussions and elaborations enhanced by video and the available library to include all supportive documents [5].

Full institutional support for faculty and students was enabled for this study through the earlier transformations to the Digi-campus, continuous ongoing professional development and availability of electronic portfolios. One aspect of this POT in PCoI process relates to the need for a rigorous process of inquiry to meet high expectations in lesson observation and authentic practice.

4. Student teachers' evaluation

A fully collaborative evaluative process for student teacher observations must account for key areas in POT, including five main competencies (professionalism, planning, implementation, assessment, and reflection). Inclusion of these aspects allowed preservice teachers in our B.Ed. Early Childhood program to describe their TP experiences using the Phygital CoI during the COVID-19 pandemic.

To evaluate the progress and gain insight into the experience of preservice teachers through this approach, a multiple data sources should be employed, including reflective and reflexive interpretations, as these allow an in-depth understanding of the student teaching program [33]. The students' online peer observation formative assessment process was used in achieving this objective. This produced a series of reflections by nine fourth and final year students enrolled in the ECE program who were expected to complete four lesson observations by their MCTs and four lesson observations by their MSTs as part of their reflective teaching practice. The group included nine women aged 19 to 21 years old, some of whom were married. All were permanent residents of the UAE and attended the program full time. The observations face to face (when recorded) and online are without time boundaries where the second observer can review the recorded lessons multiple times. This practice validates the initial peer observation and leads to a more constructive feedback. This chapter reflects on the application and the implementation of a unique POT in a PCoI where preservice teachers are observed by their peers in a real classroom setting and validated by their instructors after watching the recording. Both observations are followed by constructive feedback using Flipgrid which served as a professional learning community platform where students and their instructors came together as one community. This community includes physical and digital methods of teaching, learning and assessment.

4.1 Applications and implementation

A CoI was envisioned, drawing on a need to establish a tool or methodology to help complete lesson observations during student TP placements during the COVID-19 pandemic. As noted, the pandemic-era new normal had placed the institution in a precarious position due to the shortage of faculty for TP observations and cases

of COVID-19 among students, the primary observers, and the school and college mentors.

The TP objective remained the same during this time; the MCT was to conduct four observations, while the MST was to observe the preservice teachers four times during their TP. The MST had the opportunity to complete their observations. However, the MCT found it impossible to observe all of the student teachers that were assigned. Therefore, we had to find a creative way to establish a community of inquiry, link physical and online presences, and ensure critical thinking and rigor formed part of the practice. Ultimately, we developed a peer observation system to achieve these objectives.

The MCT encouraged preservice teachers to work in a CoI, utilizing Flipgrid, an online communications platform for educators and students, to facilitate effective feedback. The MCT could not assign preservice teachers to observe each other without ensuring that rigorous standards would be followed to enable the production of valid results and clear learning outcomes. Moreover, the MCT was required to submit summative assessments, which included data from four MCT formative observations and four MST formative observations and a final TP rubric for year four student teachers. The peer observations were included in the first course assessment, following previously published research on CoIs and a specific focus on rigorous virtual learning CoIs [2]. The practice followed the HCT's model of integrating innovative technology and rigorous learning methodologies in the contemporary phygital age. This new Phygital CoI (PCoI) was developed using the following methodology:

1. Train fourth-year students to use the Education Faculty system-wide approved observation template.

2. Train preservice students to understand the summative assessment rubric that will be submitted based on their eight formative observation evaluations. Although their peer observation cannot be used as a final summative assessment, the preservice teachers must know the procedure in detail, as they will report on each other's practice collaboratively with their MCT by this means, through the submission of peer observation and feedback. Preservice teachers have a right to access this data; it is a standard practice for the MCT to review the assessment criteria with preservice teachers.

3. Train preservice teachers on the use of Flipgrid with online videos to provide and respond to feedback. Preservice teachers are expected to use the Flipgrid as a library to document their work. They upload the following: their pre-observation notes, lesson plans, video of the demonstrated lesson, post-observation notes, lesson observation sheet and a final lesson observation sheet after the MCT provides their feedback.

4. Apply a rigorous peer observation cycle. Here, the MCT is included as a secondary feedback provider to ensure rigor in the practice and in the data. In general, preservice teachers perceive rigor in qualitative research with reference to the level of agreement among raters (MST and MCT) and observers. Therefore, in the summative assessment, preservice teachers consider the feedback from the eight observation reports obtained from the MST and MCT, as well as the eight reflective essays that the students submit, one after each feedback session. To ensure rigor in this reflective practice, the MCT uses students' peer feedback

and the MCT's feedback from a peer observation cycle as a secondary source, together with the students' own reflections. The level of the agreement facilitates a valid decision for the first summative assessment.

5. Start a WhatsApp group to ensure that all preservice teachers have immediate access to information exchange.

Since the beginning of the pandemic, the following rigorous observation cycle (**Figure 1**) has become the new normal within these PCoI groups:

> *Each student meets with the peer observer to discuss the lesson and subsequent steps, which may include discussion of a development plan for personal goals and action steps to be implemented for the following lessons. Together, the preservice teachers choose a focus area after completing a general observation.*

> *Before the observation, preservice teachers send their lesson plan to the MCT and the observer. The preservice teachers meet with the observer to discuss the areas of strength and possible areas of focus.*

> *During the observation, preservice teachers deliver lessons while their peers observe and document the lesson practice using the observation template which they were trained to use. Each student records the lesson (they can seek the classroom assistant's help to record the lesson or the focus area of the lesson) and shares it with the MCT. Each student a SharePoint link to the recording of the taught lesson before the feedback session.*
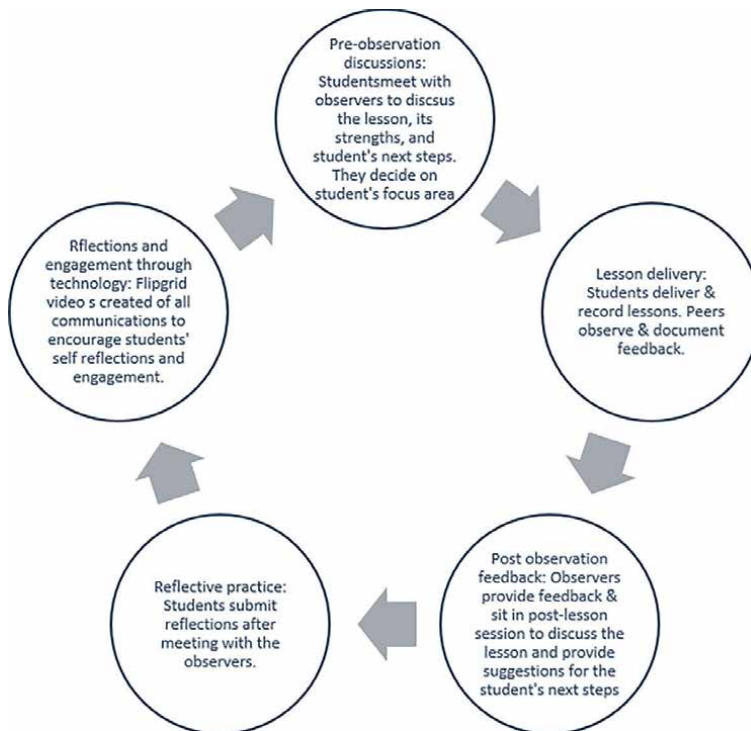
Figure 1.
Phygital communities of inquiry: PCoI communication cycle at one UAE HEI.

> *The observers provide feedback and then participate in a post-session to discuss the lesson and provide suggestions for next steps. The completed observation template and student reflection are signed by the observer. The preservice teachers are expected to upload the pre-lesson notes, lesson plan, lesson observation sheet, post-observation notes and the video to the Flipgrid library.*
>
> *After receiving these documents and watching the video, the MCT creates a new video on Flipgrid to provide feedback. The student teacher and the observer respond using Flipgrid video to ensure a sense of community, and the MCT elaborates on the earlier feedback received. Then, preservice teachers begin a thread of continuous discussion based on their expected reflections on the lesson implementation. The MCT ensures that the preservice teachers move from simple reflective practice to a more rigorous reflexive practice, in which they review their reflections.*
>
> *Each student submits her reflection after meeting with the MCT and the observer. All of these documents are attached to the Flipgrid thread.*

The COVID-19 pandemic continues to teach us to adapt to the new normal and use phygital spaces effectively. Due to the increased use of technology in higher education, preservice teachers are moving toward a robust approach, using platforms such as those provided within the UAE HEI Digi-campus, in which they can emphasize hybrid learning and pave the way for the future and the new phygital reality of education.

The concept of phygital communities has been developed from the Business field, namely D. Randy Garrison, Terry Anderson, and Walter Archer's (2000) concept of CoI as a process model, and AlShamsi's [2] contextualized practice of this process. The original concept of CoI was grounded in theories of teaching and learning in higher education, carrying the philosophical framing of John Dewey's work on community and inquiry [28]. The goal of CoI is to offer "a conceptual framework that would provide order, heuristic understanding, and a methodology for studying the potential and effectiveness of computer conferencing" [28]. AlShamsi [2] provided an overview of CoI and drew on Garrison and colleagues' CoI model, integrating a bioecological perspective, to explore the VLE of female college students at a higher education institution in the UAE, taking observations, journals, and peer-reviewed literature as means of evaluating the combined effectiveness of the three elements within the CoI framework, namely, cognitive presence, social presence, and teacher presence in the virtual classroom. The MCT adopted the framework of the PCoI and aligned it with the UAE HEI's Digi-campus and hybrid model innovation. A novel contextualized image of PCoI is given in **Figure 1**.

4.2 Implications for practice

PCoI was used to allow preservice teachers to work within a rigorous learning community, in which they were tasked with discussing an issue, working together to find solutions to it, designing and deciding on a practice, implementing the practice, analyzing and evaluating the outcome, and then implementing it once more. This reflective cycle ensured higher-order thinking and application within the contemporary digital age during the COVID-19 pandemic, allowing a smooth transition to the phygital reality of learning grounded in the theoretical perspective of CoI. Phygital experiences include the use of Zoom meetings, a Blackboard learning management system to save information and documents, document sharing using OneDrive,

incorporating the use of WhatsApp for messaging, writing reflection blogs, and employing Flipgrid to provide a collaborative PCoI group experience. The preservice teachers saved all of the documents related to each observation, along with the recording link. During the discussion, the preservice teachers used the blog and continued to reflect on each other's practice. Preservice teachers also referred to the literature, examples of best practices, and other tools to assist with their professional development. This methodology aligns with the CoI framework, incorporating an element of lifelong learning as a positive outcome. The MCT is continually present with organized materials and feedback and uses Flipgrid interactively to facilitate video discussion. Students interact with each other in the school classroom before, during, and after their observations and focus on higher-level thinking, moving from reflection to reflexivity, and finding new and creative solutions for current educational practices. With respect to cognitive presence, students are highly involved in determining the next steps and identifying their concerns for their own professional development, deciding on the next areas of focus, and discussing why those areas are significant.

The next steps involve elaborating on means of improving ECE practices in the UAE by researching and referring to the global literature, planning and applying lessons learned, and inviting others to observe and document their practice. For this, preservice teachers must agree on the next steps. This phygital approach to extending cognitive presence is all part of the process of adapting to the new normal.

The final reflective section explores the impact on learning of the students who collaborated interactively with each other and with their MST and MCT in digital and physical spaces.

4.3 Reflections from the field

As we reflect on the experiences of using Phygital Communities of Practice for the peer observation of teaching during teaching practicums, we take pride in how the approach has attempted to take the best of the pre-pandemic physical face-to-face practice and the best of the during-pandemic virtual online practice and merge them into a new approach for the new phygital world that has become our new normal post-pandemic. Naturally, there are numerous learning opportunities ahead of us, but we will draw this chapter to a close by highlighting the key learning points from our reflection on the experience described above.

Institutional Support—whilst the description in this chapter has continuously highlighted the importance of institutional support in terms of educational technology, it should be noted that all the technology used in the approach taken can also be replicated with free software widely available. The true difference institutional support makes is when teachers and learners are given the freedom and trust to try new approaches, and where creativity and innovation are not just supported but encouraged and celebrated.

Grounded in Theory—the theoretical foundation in communities of inquiry of the approach described in this chapter was both purposeful and essential as a model of good practice for the student teachers. The Bachelor of Education Early Childhood program is centred around a theory of teacher knowledge development, which focuses on the practicalization of theory and the theorization of practice [34]. Therefore, when a new initiative is launched or piloted it should act as a model of research and development by following the approach at the heart of the program's philosophy. Student teachers are thereby exposed to best practice and experience the connection between theory and practice in educational research firsthand.

Build on Strengths—the pre-pandemic physical face-to-face teaching practicum observation procedures were well-developed and clearly detailed in Teaching Practicum Booklets with well-designed rubrics for observation linked to teacher competencies aligned to the national Teacher Standards. These booklets had been adapted and strengthened during the pandemic to account for online teaching competencies as well, and student teachers were very familiar with them. Therefore, it made good sense to use the procedures and rubrics already outlined in detail in these booklets as the primary resource for the new approach.

Trust your Students—since the student teachers involved in this study are about to graduate and move into the professional field, it made perfect sense to involve them as equal partners in the observation and assessment process. Trusting their maturity and ability reaped benefits such as more open and professional communication and more frequent examples of deeper reflection on practice than had been previously seen.

Prepare the Student Teachers Thoroughly—the key to the success of the approach described in this chapter was the thoroughness of the student teacher preparation. Training them on the use of the rubrics and ensuring understanding of the criteria and competencies with examples from practice of what needed to be observed under each criterium and sub-competency was an essential part of the process.

Support and Challenge—the teacher educator role throughout the process is one of support focusing on what the student teacher observers are doing well, but also one of challenging student teachers to justify their observations and provide quality feedback as they would expect themselves when they are observed.

Depth of Reflection—ultimately the main goal of the approach was not to overcome the shortage of observers but to empower the student teachers and allow them to demonstrate real depth of reflection tying practice to theory and moving well beyond simple description. The depth of reflections provided during this study has convinced all involved that the approach has worked and will be one that we continue to use and develop in the coming semesters.

The reflective practice described in this chapter validates the CoI framework. The continuous growth of technology and its use in education implies that the new normal will soon be considered simply normal, as it relates to a twenty-first-century education. Accordingly, the higher education teaching institutions might consider it prudent to continue phygital learning and teaching to fulfill the expectations of the next generation.

COVID-19 has been instrumental in enabling the swift implementation of new phygital spaces for phygital learning through physical means, attending TP face-to-face as a response to the new normal, and digital means, making use of the new normal and utilizing technology, such as Flipgrid. These were benefits for the majority of the preservice teachers as well as their instructors.

Finally, the preservice teachers considered that they had emerged stronger after the COVID-19 pandemic, due to the new phygital opportunities they experienced, and supported by institutional strategies. They hope that this initiative has helped prepare their way for additional phygital campuses.

Conflict of interest

The authors declare no conflict of interest.

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Chapter 9

Perspective Chapter: Paradigm Shift on Student Assessment Due to COVID-19 Pandemic at Malaysian Medical Schools

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Abstract

The COVID-19 pandemic has caused disruption to normal face-to-face teaching and learning activities and assessments in medical schools globally. One of the challenges that many medical schools faced was conducting a valid, reliable, secure, and fair online assessment. This chapter introduces the principles of assessment in medical education and the transition to online examinations at several medical schools in Malaysia during the pandemic. Post-pandemic, the new normal for medical education implies using technologies for online learning and conducting assessments remotely, to enhance flexibility, efficiency and cost-effectiveness. Several strategies to ensure the proper organisation of online assessment in medical programmes without compromising its validity and security are described in detail.

Keywords: COVID-19, pandemic, medical school, student assessment, online assessment, Malaysia

1. Introduction

The COVID-19 pandemic struck in 2019 had caused varying effects on different sectors and industries. It affected educational systems worldwide, resulting in an almost complete closure of higher education institutions. Students and teachers were compelled to immediately adjust and switch to online teaching and learning activities. Universities also had to allow some flexibility when it comes to conducting examinations to eliminate in-person physical interaction.

Two years after the outbreak, all educational institutions are back open. However, there is no denying that everything is going back to how it used to be. The 'new normal' has forced us to move into digital, involving a hybrid education that combined face-to-face and virtual activities. Adaptation to new technologies seems obligatory and has become a part of the daily routine for educational systems globally. We can observe that online learning is on the rise and assessments can be conducted remotely.

With regard to medical education, e-learning helps students to adjust and adapt to an online medical environment. Yet, it limits students' interpersonal contact

with patients and opportunities for clinical practice and professional development. Nevertheless, the pandemic has brought a new insight that medical teaching and learning as well as student assessment can be conducted virtually. At Universiti Putra Malaysia, conducting online assessments during the pandemic made us realise the necessity to remain maximising the use of technology. The transition from the traditional method of assessment and the paradigmatic shifts are discussed further.

2. Student assessment in medical education

Assessment is the process of documenting the level of a learner's knowledge, skills, and attitude and its purpose is to make judgement and decisions about a student's learning against a certain standard or benchmark [1]. Assessment can be classified as a formative or summative assessment. Formative assessment, also known as 'assessment for learning', is an ongoing process that aims to monitor student's learning. It is usually low stake and conducted informally in class. This assessment is a powerful diagnostic tool for students to pinpoint which areas they have mastered and which areas of weakness so they can concentrate their efforts in those areas moving forward. Constructive feedback on the strengths and weaknesses of students is the cornerstone of formative assessment to shape and improve future learning. In many cases, educators modify their instructional materials and clarify contents to ensure students to achieve the expected learning outcomes. Examples of formative assessment include short quizzes during class, direct observation of procedural skills (DOPS) and mini-clinical examination (mini-CEX).

Summative assessment, on the other hand, known as 'assessment of learning', takes place at the end of a course of study which is usually high-stake. The purpose is to provide an accurate pass-or-fail decision about students and a final measure of student performance. In health professions education, summative assessment is conducted to determine whether students have met the minimum standards during progression, graduation and licensure to assure that the public is protected from incompetent practitioners. Concurrently, medical educators may obtain feedback on the appropriateness of learning outcomes and the effectiveness of learning instruction based on post-assessment analysis [2]. Examples of summative assessments include those that occur at the end of a course, semester, year or before the newly graduated doctors can begin to practise medicine professionally.

Medical students must acquire and demonstrate various domains of competency throughout the training. However, there is no single method of assessment that can adequately evaluate their performance across all domains. Each assessment method has its own advantages and disadvantages. Therefore, a variety of assessment methods are required to ensure that students achieve all required competencies before graduation.

More than 30 years ago, psychologist George Miller proposed a hierarchical framework for assessing clinical competence [3]. It is a valuable model showing the levels of knowledge and skills assessed in medical education. The iconic Miller's pyramid model divides between assessment of cognition and behaviour in practice (**Figure 1**). The base of the pyramid is knowledge ('knows'), followed by the application of knowledge ('knows how'). Acquiring medical knowledge is the essential precursor for clinical problem-solving. The 'knows' level can be assessed by written assessment such as multiple-choice questions (MCQs) while 'knows how' add a level of complexity to the cognitive scheme. Students need to apply their knowledge,
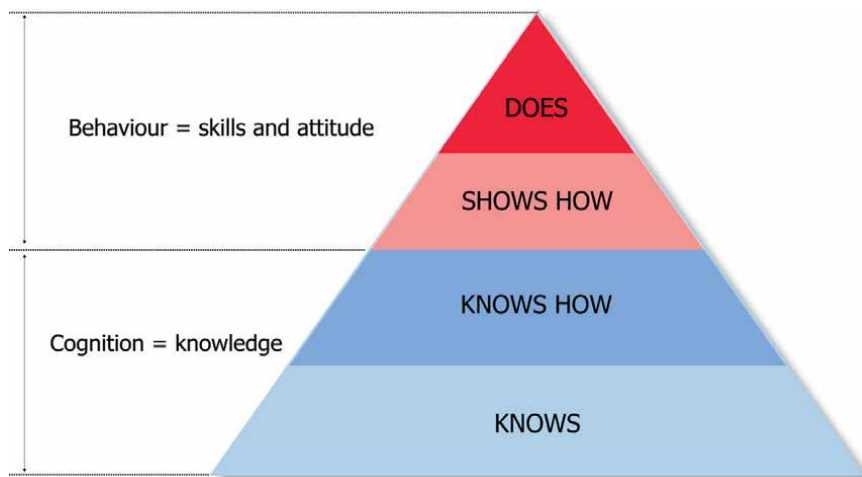
Figure 1.
Miller's pyramid [3].

manipulate the information, and demonstrate an understanding of the relationship between concepts and applications [1]. Appropriate assessment methods include higher-order MCQs, essay and viva or oral exams.

The third level of the pyramid moves the method of assessment to performance assessment and represents clinical skills competency, usually assessed under a controlled environment ('shows how'). The assessments are rather simulated and standardised. Objective structured clinical communication (OSCE) is an example of assessment, in which students may demonstrate clinical skills such as communication or performing a physical examination on a simulated patient. Finally, the top of the pyramid is clinical performance, assessed by direct observation in authentic clinical settings ('does'). Examples of assessments include workplace-based assessments such as mini-CEX or DOPS where students demonstrate clinical performance with actual patients by integrating their knowledge, skills and abilities in the real-world clinical setting.

Miller's pyramid is frequently used with other taxonomy frameworks such as Bloom's revised taxonomy. Bloom's taxonomy encompasses six levels of the cognitive domain, from the lowest level, which is remembering information, up to successively more to complex higher-order levels, which is creating [4]. The taxonomy model is useful while deciding expected cognitive outcomes and constructing written assessment items.

In selecting the appropriate assessment methods in the program, the purpose of the assessment should be considered. *Is it for formative or summative purposes?* As stated above, there are different levels of clinical competence are required. *Are the different assessment methods cover all clinical competence in Miller's pyramid? Are they adequate?*

In 1996, van der Vleuten proposed a conceptual model for defining the utility of an assessment method [5]. There are five criteria of an assessment method involved in this model, namely reliability (*does it consistently measure what it is supposed to?*), validity (*does it measure what it is purported to?*), educational impact (*how does it affect teaching and learning?*), acceptability (*is it acceptable to relevant stakeholders?*) and cost (*does it practical and feasible?*). Using this model, the utility of an assessment method can be derived by conceptually multiplying all the weights of each criterion.

$$\textit{Assessment utility} = \textit{reliability} \times \textit{validity} \times \textit{educational impact} \times \textit{acceptability} \times \textit{cost} \quad (1)$$

It is important to note that this is not a mathematical formula, but a notional one. The weight of each criterion depends on the purpose of the assessment. For formative purposes, more weight is given to educational impact while for summative purposes, more weight is given to reliability [6].

Later, Norcini et al. published a consensus statement identifying seven criteria of a good assessment. Five of them were derived from van der Vleuten's model, while another two are equivalence (*does it produce similar results in different groups?*) and catalytic effect (*does it create, enhance, and support education?*) [7]. Therefore, it is essential to evaluate these criteria when considering the appropriate and suitable assessment methods or tools in the programme.

2.1 Assessment of knowledge acquisition and application

Written assessments are widely used in medical education to assess knowledge acquisition, comprehension of basic principles and clinical reasoning. Although these skills are positioned at the base of Miller's pyramid ('knows' and 'knows how'), they form a foundational set of skills that students need to master prior to achieving clinical competence. They are inexpensive, convenient and produce reliable scores. There are many types of written assessment commonly used for medical students which will be covered in the next section.

2.1.1 Multiple choice questions (MCQs)

This is certainly the most popular assessment method globally because of its validity, reliability and practicality. The A-type MCQs require examinees to select one best answer from several options. They are also known as single-best answer questions (SBAQs) or one-best answer (OBA) questions. The question consists of a stem, which can be a clinical or non-clinical vignette, a lead-in statement and three or more answer options.

The R-type MCQs, also called as extended matching items (EMIs) or extended matching questions (EMQs), are an extended version of the A-type format. In a set of EMIs, there is a theme of the questions, a list of options (can be from seven to 20), a lead-in statement and a minimum of two items or vignettes. All items should be relevant to the theme. For each item, examinees choose the correct answer from the list of options. Both A-type and R-type MCQs can be used to assess the theory and application of knowledge, critical thinking and problem-solving skills.

Multiple true false (MTF) questions are becoming less popular among medical schools. They are normally used to test factual recall. However, this type of assessment is able to cover more breadth of a topic, which is suitable to be used in formative assessment. Each item consists of a stem, followed by five statements related to the stem. For each statement, examinees may select either true or false. In a pen-and-paper examination, optical mark recognition sheets, better known as OMR sheets used by the examinees to mark their answers. Those sheets are analysed by an OMR machine and the scores can be obtained instantly. Certain OMR machines can also perform a concurrent evaluation of the quality of the questions based on the examinee's response and scores.

2.1.2 Short answer questions (SAQs) and essay questions

This type of assessment consists of open-ended questions which require the examinees to write either brief or long answers in SAQs or essays, respectively. They can either assess lower-order or higher-order thinking. Usually, examinees are assessed on the application of knowledge ('knows how'), and clinical reasoning. In both methods, the disadvantage is that they have to be marked manually by examiners. It can be resource intensive with a large number of examinees per cohort, particularly for essay questions. In certain cases, the answer scripts are marked by more than one examiner, based on the answer scheme. Although it can reduce the examiner's workload, this may affect the reliability of the scores with multiple examiners per question.

2.2 Assessment of clinical performance

2.2.1 Objective structured clinical examination (OSCE)

OSCE consists of several structured stations in a circuit in which an examinee moves in sequence. The number of stations and the duration for each station can vary based on the complexity of the skills being assessed [8]. It allows examinees to demonstrate a specific clinical skill in each station in a standardised medical scenario. It is usually conducted in summative assessment. OSCE is widely implemented due to its high validity and reliability to assess across different cases and skills. A large number of students can be assessed in the same way with multiple concurrent circuits. The use of standardised or simulated patients is common during OSCE so that examinees may interact with them to perform history taking, physical examination, counselling and others. There will be an examiner at each station to observe and score the examinees based on a pre-determined checklist.

2.2.2 Long case and short case examinations

The long case is a traditional clinical examination that assesses student competence at the 'shows how' level in Miller's pyramid. It requires a student to spend approximately an hour with a patient, taking history and carrying out a physical examination, unobserved. Then, the student summarises the findings to one to three examiners and answers several questions. The examiners score the student using unstructured marking criteria. Although many concerns regarding its reliability [9], the long case is still popular due to its authenticity and ability to assess clinical approach holistically. To increase the validity and reliability of long cases, several modifications have been implemented such as observing students while they interact with a patient, using a structured marking scheme and increasing the number of cases [10].

Short case, on the other hand, requires a student to spend about 5–10 minutes with a patient to examine the patient and detect signs under observation. Then, the student needs to formulate a clinical or differential diagnosis of the patient. Similar to long case, the student is scored according to unstructured marking criteria. In many medical schools, the introduction of OSCE has replaced long-case and short-case examinations, especially for high-stake examinations.

2.2.3 Workplace-based assessment (WBA)

WBA encompasses a group of assessment methods that evaluates students' performance in an actual clinical setting. Examples of WBA include mini-clinical evaluation exercise (mini-CEX), direct observation of procedural skills (DOPS) and case-based discussion (CBD). These assessment methods have high authenticity and are located at the tip of Miller's pyramid ('does'). They are usually conducted as formative assessments with the main aim to aid learning through feedback.

Mini-CEX expects a student to conduct a focused clinical skill such as history taking or physical examination with an actual patient within a short and specified time. The performance is graded using a structured evaluation form and constructive feedback is provided. This assessment occurs on multiple occasions in daily practice with different assessors and in different settings. DOPS is a variation on the mini-CEX, which focuses mainly on procedural skills. It is specifically designed to evaluate practical skills for example in surgical, medical or general practice against pre-determined criteria, followed by a face-to-face feedback session.

On the other hand, CBD is a focused discussion driven by an existing case the student has encountered. The discussion centres on what was done, why it was done and how any investigation and intervention was made. After the discussion, the assessor scores the quality of performance and provides constructive feedback.

3. Impact of the pandemic on student assessment at Universiti Putra Malaysia

The Malaysian government imposed a Movement Control Order (MCO) in March 2020 as a result of the unprecedented situation. Consequently, the planned academic schedule and all teaching and learning activities in higher education institutions in Malaysia were severely impacted. All face-to-face activities were suspended and were conducted remotely. Medical schools were given the flexibility to amend their teaching and learning activities and assessments based on the guidelines published by the Malaysian Medical Council (MMC) and the Malaysian Qualification Agency (MQA). This was to ensure that all assessments were valid, reliable and fair without compromising the programme's educational objectives.

Universiti Putra Malaysia (UPM) experienced the first online examination with a small number of preclinical students for a remedial examination [11]. This became the inception for the faculty to make further improvements for subsequent examinations with a larger cohort. Due to some limitations of the in-house learning management system (LMS), we used commercially available platforms to deliver the theory and practical examination questions. A mock examination was conducted prior to the actual examination to provide hands-on experience for both faculty members and students. Some amendments and improvements were made based on the findings from the mock examination and feedback from faculty and students.

On the day of the examination, a video conferencing platform was used to proctor the students and conduct OSCE. Earlier, the blueprint for OSCE was revised and only history taking, data interpretation and communication skills were possible to be assessed. In order to facilitate coordination and ensure strict adherence to COVID-19 standard operating procedures (SOPs), all examiners and simulated patients (SPs) were convened in the faculty. They were seated according to their stations, maintaining a suitable physical distance between them. Through the video conferencing platform, the
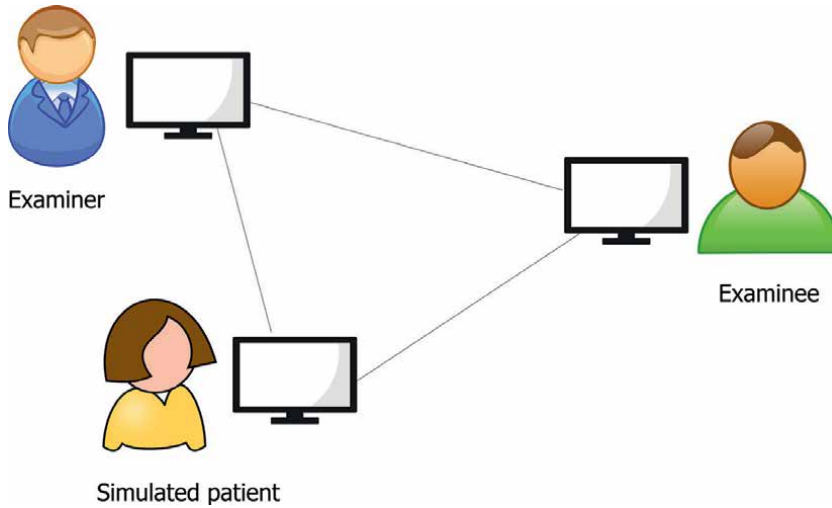
Figure 2.
An examiner is observing an examinee interacting with a simulated patient remotely in an online OSCE.
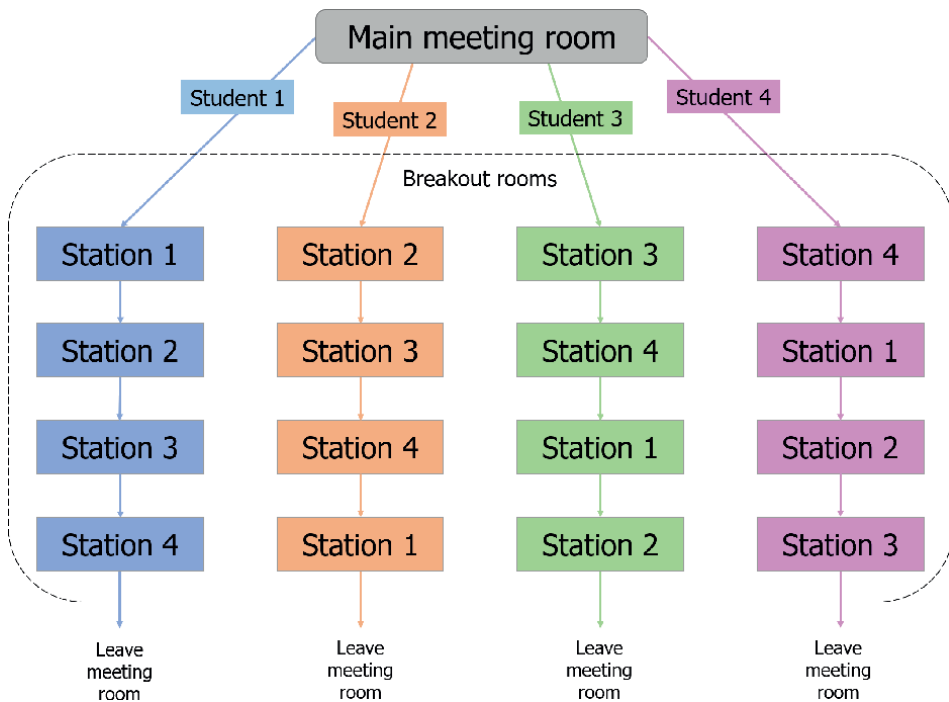
Figure 3.
An example of an OSCE circuit consisting of four stations conducted in breakout rooms in a video-conferencing platform.

examiners could observe the students communicating with the SPs remotely (**Figure 2**). Online OSCE was possible by transferring the students into multiple breakout rooms which mimic the physical stations in an OSCE circuit. The examiners and SPs remained in the same breakout room and the instructions for students were shared on the

computer screen. The example of an online circuit with four OSCE stations is presented in **Figure 3**. We employed several strategies to prevent cheating attempts which include shuffling the questions and answer options, using a 'lock-down' browser and requesting the students to sign an integrity form before the examination.

Later, we successfully conducted an online examination with several cohorts of students. We also modified the typical synchronous online OSCE into written examination and video OSCE [12]. However, these modifications still have their limitations in assessing the intended clinical skills. For instance, we had to postpone our final year examination because it was not feasible to conduct the clinical examinations for a high-stake examination remotely.

When the government allowed medical students in clinical years to return to campus, the final examination was conducted with tight compliance to COVID-19 SOPs. All staff and students were required to complete their vaccination status to be on campus. There were some amendments made to the examination which include a prolonged duration of the exam and a reduced of examiners for each long case and short case examination. The students also had to sit for only two short cases examination as opposed to the usual three short cases. Several discussions with the Dean, Deputy Dean, coordinators and medical education unit were made to ensure that the validity was not compromised. The amendments were also implemented in accordance with the guidelines made by the MMC and MQA related to medical education procedures during and post-COVID-19.

4. Experience at other medical schools in Malaysia

The outbreak of COVID-19 has changed the perspectives of conducting assessments online and remotely. Medical schools in Malaysia had no choice but to innovate and engage in online methods to conduct the examinations despite being in lockdown. This is to avoid any delay in the student's graduation or progression to the subsequent years.

The assessment method in Universiti Sains Malaysia underwent a major revamp, with the final examination being converted into a continuous or online assessment [13]. Theory examinations and OSCE were conducted online through their e-learning platform [14]. The unexpected circumstances have caused medical lecturers to embrace their e-learning portal more than prior to the pandemic.

Universiti Tunku Abdul Rahman (UTAR), a private medical school conducted their Year 3 MBBS Professional Examination using Google forms for theory examination. They used Microsoft Teams to proctor 49 students during the examination and to run OSCE. The students had to use two devices during the examination; one for assessing the exam questions and the other one placed at the corner back to act as a video camera. To enhance the integrity, the students were required to show that no unauthorised materials were within their vicinity and the examination was recorded and monitored by their Department of Exam. They claimed that the online exam conduct was more efficient and required fewer resources compared to the traditional physical setting [15].

Meanwhile, Universiti Malaysia Sabah used their LMS system to conduct their theory examination online through Google Meet. They convert all methods of theory examinations into MCQs as it was more feasible and practical. Similar to UTAR, the students used two devices during the examination. Meanwhile, the clinical examinations were conducted asynchronously. The students had to record videos while

performing procedures and examinations on family members, friends or manikins. They were given feedback and were allowed to resubmit another video until their performance was deemed satisfactory. The online examinations were only done on the cohorts involved in low stake examinations and they would have opportunities to improve themselves in the remaining years before graduation [16].

The traditional long case and short case examinations were converted into physical OSCE in the Final Professional Examination at Universiti Sains Islam Malaysia. The examination was conducted in strict adherence to COVID-19 SOPs. It was their first time conducting OSCE in the high-stake examination, however, they managed to train the faculty, students and all personnel involved as well as recruit adequate simulated patients within the constraint. Despite mixed reactions from the faculty and students, the faculty has decided to resume with OSCE in all clinical examinations from there on after careful deliberation of the benefits of OSCE [17].

5. Challenges of online assessment

The adoption of online assessment is not without obstacles. Internet connection has been a major concern among the faculty and students [11, 15, 16]. A synchronous online examination could be a challenge, especially for students living in rural areas. Some faculties did a mock examination to test logistic capabilities. Students who discovered that their internet connection or hardware was not adequate for the exams had ample time to make required adjustments before the actual examination. These include upgrading their hardware or taking the examination in other places with more stable internet connections. Extra time can be given to the students who have unstable internet connections to complete the examination.

The unusual feeling of taking an important examination remotely may cause the students to develop anxiety. In a study in China, medical students felt anxiety during an online exam due to their poor capacity to adapt to the online platform and worries regarding the fairness of the online assessments [18]. This also occurred at UPM [11]. The pressure of having to familiarise themselves with online platforms might be burdening and cause emotional distress, not just to the students but also to the educators [13]. Administrative support is very crucial to ensure a smooth implementation of the online assessment.

Another challenge was to ensure the constructive alignment of the online assessment. The assessment of affective and psychomotor domains might be difficult to conduct [12, 13]. Assessments related to the 'shows how' and 'does' in Miller's pyramid such as long case examination and workplace-based assessment with patients are not possible in an online environment. It can also be tough to assess clinical skills and professional attributes such as empathy and teamwork remotely. To assess physical examination skills, faculties might need to be creative either by using simulated patients [15] or manikin. History-taking and communication skills were assessable either synchronously or asynchronously [11, 12], however, other performance tests are difficult to conduct without introducing threats to the validity of the assessment [1, 19].

6. Strategies to conduct online assessment

Given the technological advancement we have made in adapting to the pandemic, medical schools may consider remaining to adapt the innovative methods as long as

they are valid and reliable. Several strategies can be taken to conduct online synchronous and asynchronous examinations, especially if it is conducted for the first time. These can be divided into pre-, during and post-assessment (**Figure 4**).

6.1 Pre-examination

6.1.1 Ensure adequate facilities and human resources

The most important factor for a successful online assessment is to identify whether the institution has sufficient infrastructure to run the online assessment. Facilities such as computers with stable internet connection are essential. The computers must be compatible with all online software and platforms needed for the assessment. Additional accessories such as a microphone, camera, speaker and headphones are required to enable two-way communication. The internet connection must have adequate bandwidth to support the transmission of data between faculty and all students for the whole assessment process.

The LMS system subscribed by the institutions usually may be used to deliver the assessment. Some examples include Moodle, Canvas and Blackboard can be used to develop student assessments, obtain performance data and provide feedback to students [20]. Additionally, numerous commercial online examination platforms can be subscribed to by the institution to be used for synchronous and asynchronous examinations. Some of these platforms have additional features such as a question bank besides being able to perform item analysis and alignment of assessment to the course learning outcomes that can facilitate further administrative work.

Some practical considerations should be given for the online examination platform. For example, the platform should be secure and dependable and can cater to the faculty and students. To ensure security and prevent any dishonesty attempt, some of these platforms are equipped with a remote proctoring system to confirm the examinee's identity and monitor behaviour while taking the examination. For tests consisting of MCQs, most of the platforms allow automated scoring while manual marking can also be done for open-ended questions. However, some platforms can only accommodate written-based examination, but not performance-based examination. OSCE for example may be conducted through a video conference platform such as Microsoft Teams and Zoom application by creating multiple break-out rooms for individual OSCE stations. However, other assessments that involve actual patients and require examinees to perform clinical skills such as physical examination and clinical procedures can be quite tricky. This may not be feasible and still need to be done physically in a proper clinical setting.

Paperless examination using an online platform is more environmental-friendly and can be cost-effective in the long run. The institution is able to save many resources in terms of effort, money and time [21]. Automated analysis can be done instantly and this enhances instant and timely feedback for the benefit of faculty and students. A high volume of assessment data and documentation can be managed efficiently with a proper and stable online examination platform.

However, the institution needs to ensure there are adequate technical experts to manage and support the whole assessment system. This is essential to prevent interference, especially while the examination is running. Detailed guidelines and SOPs can be prepared to be used as a reference. The faculty must also be familiar with the navigation of the online platform used for the examination. Academics need to be well informed on how to set up an assessment using the platform, how to

Pre-examination
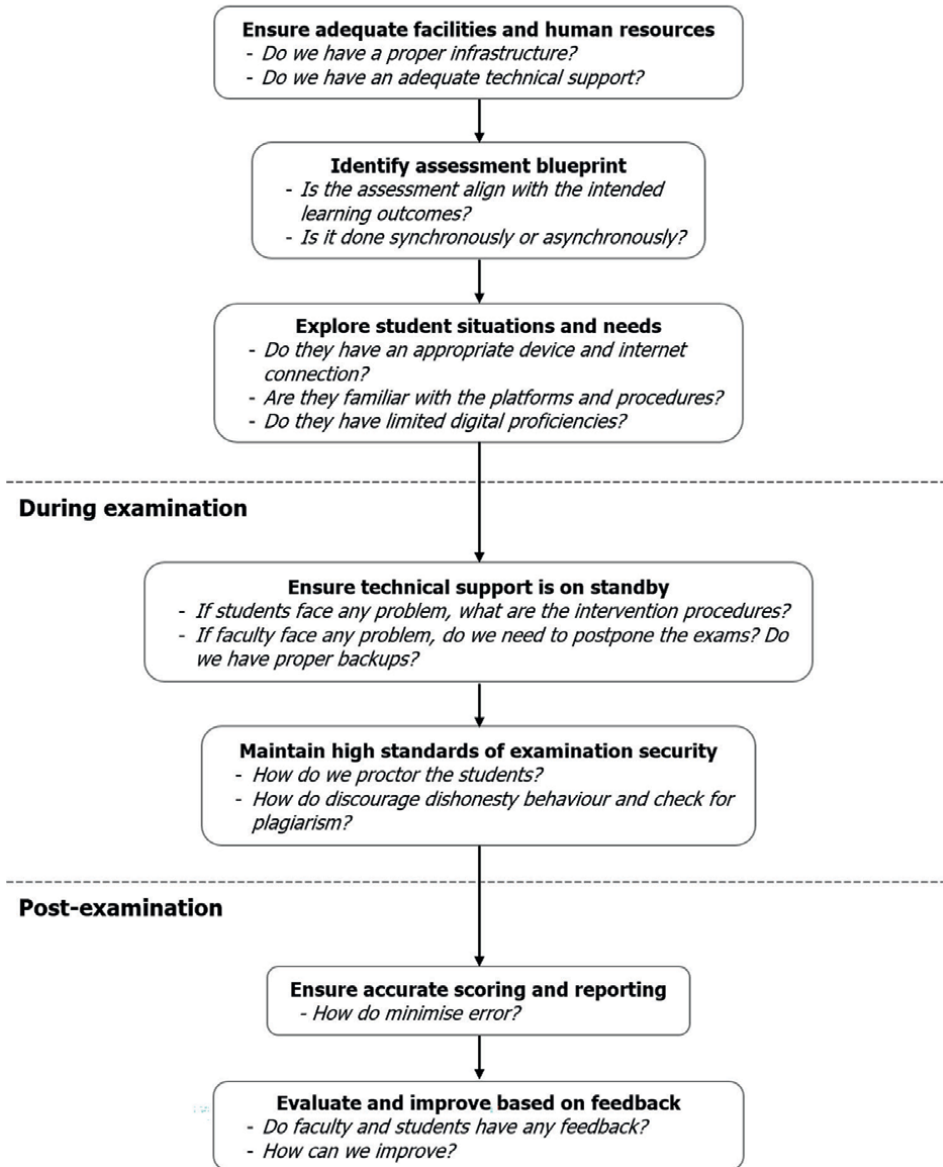
Figure 4.
A flowchart of several strategies to conduct an online assessment.

insert questions and the answer scheme, how to retrieve answer scripts and grade the students and how to provide feedback if needed. Maintaining the security of the exam questions and students' information needs to be paid great attention to. If a video conferencing platform is used, faculty members need to know how to admit students, invigilate students, set up breakout rooms and use many other features in the platform. Adequate training is essential to familiarise the faculty with the workflow and navigation of the online platform. It is crucial for the faculty to be well-prepared and have enough confidence to conduct an online examination.

6.1.2 Identify assessment blueprint

An institution must ensure that the assessment methods are aligned with the intended learning outcomes. Converting to an online examination for a written assessment is highly possible with an appropriate online platform. As a matter of fact, exams with MCQs can be more efficient and cost-effective in an online setting [15].

However, remote or online assessment of some clinical skills may not be feasible due to limited standardisation and inadequate resources. The majority of clinical skills that require the presence of patients are not possible to be assessed remotely. Therefore, a clear and detailed blueprint should be prepared to guarantee that all learning outcomes are covered. An example of a blueprint for Orthopaedic course is shown in **Table 1**.

As shown in the table, written assessment is conducted online while the assessment of performance is maintained as an in-person examination. It is also indicated whether the online assessment is done synchronously or asynchronously. This is flexible for any institution depending on their feasibility and practicality. The conduct

Course learning outcomes At the end of the course, students should be able to:	MCQ	Essay	Long case examination	Mini-CEX	OSCE
Understand the pathophysiological aspects and principles of treatment for common musculoskeletal conditions	/[*] (synchronous)	/[*] (asynchronous)			
Identify appropriate diagnosis and relevant investigations for common musculoskeletal conditions	/[*] (synchronous)	/[*] (asynchronous)			
Conduct appropriate history taking and clinical examinations in patients with musculoskeletal conditions			/	/	/
Demonstrate medical ethics and professionalism in patient care			/	/	/

[*]*online assessment.*

Table 1.
An example of an assessment blueprint for Orthopaedic course.

of asynchronous examinations is also flexible. For instance, students are given some clinical problems and are required to submit an assignment in the form of essays about the diagnosis, investigations and treatments within an allotted duration.

6.1.3 Explore student situations and needs

One advantage of conducting an online assessment is that students do not have to be present on campus and can sit for the examination remotely. However, we need to consider various factors that may discriminate the student's capacity for an online assessment. An institution cannot ignore the fact that students living in rural areas may have limited access to a seamless internet connection. Some students may not have the necessary resources such as a personal computer or laptop. It is essential to put these considerations in the first place, especially before implementing an online examination.

The faculty should first gather feedback from students if they decide to convert to online examination. Explore their needs and capacity. If an internet connection is an issue, faculty may conduct an asynchronous examination with a reasonable time to complete it. This allows some flexibility for students to complete the examination at their convenience. An open-book examination can be carried out in the asynchronous method. In this scenario, the questions or assignments should be assessing higher-order thinking skills that answers can not just be directly obtained from any references. If a synchronous online examination is deemed necessary, facilities should be made available for students without a proper device or access to a stable internet connection. An example would be allowing the students to sit for the examination in the computer lab in the faculty. However, invigilators must be present similar to physical examination to prevent discussion among the students.

Students should be briefed about the conduct of online examinations and the expectations. A mock examination or a trial run is obligatory before running the real online examination. It is encouraged to execute the mock similar to the actual exam in terms of the method of assessment, duration and time. This is to provide a hands-on experience to students and faculty and identify any difficulties during the examination. For example, we noted that the long duration of the examination was physically and mentally challenging, so the actual exam schedule was amended by breaking down the exam into multiple parts with breaks in between [11]. There should be an adequate period between the mock and actual examinations so that proper interventions can be taken by both faculty and students.

Some students may also have limited capabilities concerning digital use such as keyboard typing skills and familiarity with certain computer applications. An additional time for the examination can be considered, especially if it involves many multimedia such as images and videos. Practice questions can also be given to students for them to familiarise themselves with the online platform prior to the actual examination.

6.2 During examination

6.2.1 Ensure technical support is on standby

It is important to expect the unexpected worst-case scenario on the day of the examination, particularly for a synchronous examination. Therefore, we need to ensure there is adequate support and assistance available if needed. For example, if

there is network interference occurs on the examinees or faculty's side, there is an SOP on how to handle the situation. In a synchronous examination, the faculty needs to prepare an alternative medium for examinees to immediately inform if they face any glitches to get online, such as by a telephone call. In certain cases, examinees may suddenly face internet or device problems while taking the exams. *What kind of intervention should be done? Do we allow extra time given for them to complete the examination? How long should it be?* It is also recommended to prepare an extra set of exam questions beforehand in case there are students who do not manage to complete the examination due to some circumstances.

There is also a possibility that the faculty encounters technical problems. For instance, there is an electricity outage in the institution or the online platform cannot be accessed for whatever reasons. *Do we have a backup platform? Do we need to postpone the examination?* This needs to be considered. A backup platform or devices can be arranged earlier in case it happens. An extra set of exam questions is useful if these problems occur when the examinees have already been exposed to the questions.

6.2.2 Maintain high standards of examination security

There is much evidence showing that cheating and academic dishonesty are common in online assessments [22, 23]. This can be a threat to the validity of the assessment. Given the availability of technologies like Bluetooth, wireless networking, mobile phones and wearable technology, preventing cheating during online exams might be challenging. Tech-savvy students will always come up with new ways to cheat. If the examination involves a large number of students at a time, there is always a possibility that they may communicate with each other.

Some strategies can be employed to deter cheating, particularly for a synchronous examination. Using a remote proctoring system, that is able to confirm student identity, and track eye movements, keystrokes and background noises are convenient to recognise potential cheating attempts. Students need to download specific software onto their computers which can allow a third-party service provider to monitor or record their webcam, microphone and desktop feeds completing the examination. However, this software can be quite expensive to subscribe to. Some institutions may have reservations about online proctoring systems due to worries about privacy and ethical issues [24]. An alternative is to have human invigilators to monitor students' behaviour in real-time through a video conferencing platform. Yet, to invigilate a large number of students, for example 100 students, in one setting can be difficult. Therefore, many invigilators are needed by breaking down the students into smaller groups for easier observation.

For assessments involving MCQs, the questions and answer options can be shuffled so that each student's paper would have a distinct order of questions. With this tactic, it can be challenging for them to exchange information and share answers within the allotted exam time. In a closed-book exam, examinees may also have the opportunity to access other applications or search online references while answering the questions. There are many software available to lock down the browser to discourage this attempt. Some online examination platforms or LMS are already been embedded with these enhanced security features to provide a secure test environment. Another solution is by requesting the students to use two devices while taking the examination. One device is their computer, to access the exam questions and the second device should be with a camera, such as another computer, tablet or smartphone to be placed behind them. Hence, we can have an almost 360-degree view

and ensure that no other references are available within their surroundings or on the computer screen.

An integrity agreement that students need to read and sign can be distributed prior to the examination. This agreement includes statements that students shall conduct themselves honestly and ethically in the exam. They also need to be briefed and frequently reminded of the consequences of violating the policy.

In an asynchronous and open-book exam, there is also a possibility that students may copy the work of others. There is commercially available cost-effective software that can be used to detect any duplication and plagiarism, such as Turnitin and Dupli Checker. The software can give an instant and comprehensive report to confirm whether the student's work is authentic by comparing it with billions of resources across the internet.

6.3 Post-examination

6.3.1 Ensure accurate scoring and reporting

The use of an online assessment platform can significantly boost the efficiency of administrative work like marking, gathering and organising data. Automation can reduce the workload and burden of faculty members when testing large student cohorts. However, human error cannot be totally eliminated. Generally, faculty needs to check and verify that the scoring is correct prior to reporting. Having cloud storage or backup folders to save all information is recommended just in case the platform crashes or fails to work.

6.3.2 Evaluate and improve based on feedback

The transition from a traditional pen-and-paper examination to an online assessment may emotionally affect the faculty and students. Hesitancy and anxiety in dealing with the online environment may be observed in a few cases. Therefore, allowing two-way feedback is crucial for building trust and confidence. Frequent training should be conducted to enhance proficiency with the online system, especially for a new cohort of students.

For any kind of assessment, regular monitoring and evaluation should be done to identify any areas for improvement. An institution should invest their effort and time to analyse successes and failures in the assessment conduct. Any problems detected during the examination should be recorded and troubleshot. It is also important to ensure that the online platform is stable and well-maintained to avoid interference for subsequent assessments. Further enhancements can be made to smoothen the assessment process and to be more convenient and cost-effective for both students and faculty.

7. Conclusion

The COVID-19 pandemic has forced a rapid transition from traditional pen-and-paper examination to alternative student assessment methods which encompasses the use of a variety of digital platforms. We can observe that many examples of successful innovative online assessment conduct have been done in Malaysian medical schools, and globally. They have achieved favourable results in terms of validity, reliability and

acceptability from both faculty and students. Such efforts serve as a stepping stone for medical education reforms that previously might be proposed but never completely materialised.

Online assessment is no longer impossible, albeit the limitation on assessing clinical performance. Without a doubt, we must not overlook the fact that not all faculty and students have equal access to technology and digital competency. Nevertheless, it is time for us to use technology to create a better educational experience and find creative ways to increase equity. Despite all the challenges, we need to remain vigilant and may take appropriate measures to minimise complications. Above all, we need to ensure that the assessment conducted is valid, reliable, feasible, secure and fair.

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Perspective Chapter: Higher Education in Arab Minority in Israel – Challenges and Struggles

Waleed Dallasheh and Ihab Zubeidat

Abstract

Education plays a critical role in building community and contributing to cohesion in society. Arab society views education as one of the main challenges in its shaping, development, promotion and preservation of its character and heritage, and therefore its involvement in increasing educational matters. For many years, the education system and especially higher educational institutions in the Arab society has suffered from neglect and discrimination, manifested in large gaps between it and the education system in the Jewish society, both in resources and achievements. This chapter will focus on Arab society higher education institutions challenges and struggles in light of the complex relationship between the Jewish majority and the Arab minority in Israel. Arab society in Israel operates in the context of a Jewish majority state. This leaves it in the hands of the majority, while the minority group has limited involvement in its contents. This article also attempts to clarify the collective rights of the Arabs while discussing the relationship between the Jewish majority and the Arab minority in Israel. Moreover, the article paints a picture of the current situation of the Arab population, while emphasizing the changes that have taken place since the establishment of the State (1948) until today.

Keywords: higher education, minorities and majorities, Arab society, economy and employment, labor market

1. Introduction

The Arabs in Israel are a numerical minority and a sociological minority at the same time. They are a sociological minority because this is a population society that is not represented in the political elite, neither in the military elite nor in the country's economic elite, and therefore deprived of the national dominant group. The Arab population, as mentioned above, constitutes a numerical minority, since the Arab population today numbers more than 1.8 million people, 21.10% of the total population [1], and the Arabs became more than two-thirds of the population. The Arab citizens were forcibly isolated from Palestinian culture and from the Arab world, causing total destruction of their urban centers, the middle class, and the educated elite that might have continued to nurture Palestinian Arab culture were expelled and

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their communities destroyed [2]. In 1948, 150,000 students studied, two-thirds in a state school, and one-third in a private school The Arab population was left with no infrastructure for the creation and nourishment of Arab culture and without channels for the Arab mother culture, the first channel for the Arab world was opened after the 1967 war after the opening of the borders and additional channels were opened following the peace agreements (**Table 1**) [3–5].

The Arab population is heterogeneous (Muslims, Christians and Druses), very diverse and needs are different within the education system, as well as in other areas. Arab society consists of urban populations living in Arab and mixed cities and villages (some of which are not recognized by the authorities for national political reasons), and groups with different socio-economic levels, different cultural norms, different levels of religiosity and tradition, and different levels of education and higher education In terms of geographical distribution in 2020, approximately 51.6% of the Arab society residents live in the northern part of the country - the Galilee and Haifa districts, 19.7% in triangle region, 17.5% in the Negev District and the mixed cities 8.5% (**Table 2**) [6].

The interests of Israeli governments are primarily the result of political and security problems, primarily the conflict with the Palestinians, which is manifested in frequent violent confrontations. As a result, successive Israeli governments have reduced their ability to act, and especially their budgetary capabilities. The result is a

Population group	Size	% of total Israeli population
Jews	6,873,910	74.00%
Arabs	1,957,270	21.10%
Arab citizens of Israel	1,595,300	17.20%
Others[*]	458,580	4.90%
Total	9,289,760	100.00%

[*]*The category "others" includes non-Arab Christians and citizens with no religious affiliation.*

Table 1.
Population of Israel by population group [6].

Region	Arab population (thousands)	% of total Arab population
Northern Israel	823	51.60%
Triangle region	314	19.70%
Negev	280	17.50%
Mixed cities	132	8.30%
Jerusalem corridor (including west Jerusalem)	17	1.10%
Rest of Israel	29.5	1.80%
Total	1,595.30	100%

Haddad et al. [6]. Statistical report on Arab society in Israel. The Israel democracy institute, Center for Democratic Values and Institutions.

Table 2.
Arab citizens by area of residence (End of 2020 and not including East Jerusalem).

decline in social services provided by the state: education services, higher education, health, welfare and social security. The government expenditure (including local authorities), which includes 41.2% of gross domestic product in 2014, places Israel in close contact with countries in Eastern Europe and countries with a tradition of low government expenditure such as New Zealand and Canada, and the unavailability of long-term plans To increase the rate of entitlement to a matriculation certificate, to increase the student population or to include it among the general population of Israel, and especially the Arab population that is disadvantaged by the "start-up nation" [7].

2. Majority and minority relations

Smooha argues that the difficulty in Jewish-Arab relations in Israel stems from the fact that the Arab minority is a well-defined national and religious minority that cannot be assimilated in the Jewish majority, and even a minority is discriminated against by dividing most of society's resources [8]. Israeli security, surveillance and Control policies toward the Arabs, discrimination and discrimination, and above all the sense of exclusion, have instilled in the Arab population feelings of fear and insecurity [3, 5].

Many economists and scholars agree that the policy of successive Israeli governments is a major factor in discrimination, inequalities and socio-economic gaps between Arabs and Jews. The democratic and modern states in the world tend to combine two models out of four basic models that exist for drawing the relationship between the majority and the minority:

a. Model nation building (assimilation): full rights in return for voluntary renunciation of their separate identity as a minority [8].

b. The model of egalitarian pluralism: harmonious and egalitarian coexistence between majority and minority (autonomy arrangements).

The basic principles of both models are recognition of the minority and its full rights. In contrast, the State of Israel does not recognize these two models and combines two other models.

a. A model of unequal pluralism: the method of control, recognition of the cultural and linguistic diversity of the minority without granting them equality.

b. Model of pushing out: The majority seeks to expel the minority from the territorial framework or even to destroy it physically.

Khayder notes, among other things, this policy, which is expressed in the expropriation of economic resources and the transfer of property (for example, through the Absentee Property Law), as well as the expropriation of land from Arab owners and their redistribution for national Jewish needs [9]. The extent of the resources invested by the State in the development of the Arab localities is considerably smaller than the amount invested in the Jewish localities. Therefore, the differences between the status of the Jews and the status of the Arabs derive mainly from ethnic, national and geographic affiliation and the policy of control and repression mentioned above [5, 10]. In other words, the status of the citizen is closely related to belonging to a

nation. These intertwined factors draw the map of the gaps between Jews and Arabs in Israel. As these gaps continue to deepen and deepen, social unrest may arise, and in combination with political and national circumstances, this unrest may deteriorate relations between Jews and Arabs [11, 12]. However, vigorous action by the government in conjunction with the Arab population and in partnership may reduce pressures, create a stronger sense of belonging of Arab citizens to the state, and serve as a basis for equal and equal citizenship.

Jews and Arabs alike agree that the Jewish-Arab divide is profound and influential in the development of Israeli society. This has always been true and the tension has intensified since the events of October 2000 [4, 5]. Such a deep rift in Israel has led to civil war and the collapse of the regime in several countries around the world. In some respects, the case of Arabs in Israel is similar to that of minorities in other bi-ethnic countries that have a cultural and political connection with neighboring countries, such as Tamils in Sri Lanka, Catholics in Northern Ireland, and Turks in Cyprus [13].

Smooha argues that the difficulty in Jewish-Arab relations in Israel stems from the fact that the Arab minority is a well-defined national and religious minority that cannot be assimilated in the Jewish majority, and even a minority is discriminated against by dividing most of society's resources [8]. It should be added that Israeli security, surveillance and Control policies toward the Arabs, discrimination and discrimination, and above all the sense of exclusion, have instilled in the Arab population feelings of fear and insecurity [3, 5].

3. Economy, employment and the labor market

The socio-economic situation of the Arab population in Israel is very low relative to the Jewish population. Most of the Arab localities are ranked in the lowest socio-economic clusters according to the Central Bureau of Statistics ranking: There are significant gaps in gross labor income per capita relative to the majority population, where the rate of poverty and poverty is much higher: Arabs constitute 18% of the working age population [1]. The employment rate is lower than that of the Jewish population, and a gender segmentation reveals that there is a significant gap in employment rates among Arab women (33%) compared to 76% among Jewish women [14], and there are significant wage gaps Among the various groups in Israeli society, and especially among the Arab wage earners The lowest average wage was found among Arab employees: their income was about two-thirds of the average income of all salaried workers in Israel, and less than half of the average wage of Israeli-born persons [15].

There is a large gap between the average years of schooling between Arab and Jewish students. When the number of years of education in the modern society has a direct and far-reaching effect on the chances of integration into the labor market and progress in it, and according to recent studies, the acquisition of education improves the status of employment [16–19]. According to the Central Bureau of Statistics for 2016, Less than one-tenth of the Jewish population studied at primary and junior high schools, and is therefore likely to find itself in the lowest socio-economic stratum in the country since the employment opportunities that are appropriate to its level of education are low [1]. The gaps in the level of education between the two populations are prominent among graduates of post-secondary and academic institutions: the proportion of Jews who studied in an academic institution was 14.2 times higher than among Arabs [1]. Arab experts explain that many Arab students prefer to acquire higher education in Jordan or the Palestinian Authority [20]. One of the reasons being

the difficulty in passing the psychometric test, which they claim is linguistically biased toward Jewish students and makes it difficult for Arab students to be admitted to universities [21].

The policy of control and repression, as noted, causes the participation in the civilian labor force of the Arab population to be smaller than that of the Jewish population [22–25]. Thus, for example, in 2017 the proportion of those aged 15 and over in the civilian labor force was 4.41%, compared to 59% among the Jewish population [26]. The rate of belonging to the civilian labor force in the Arab population increases as the level of education rises. According to 2007 data, the lowest rate of belonging to the labor force was among those with 4–4 years of education (4.8%), while the highest rate was among those with 16+ years of schooling or 3.76% [7]. For example, in 2014/15, 14.0% of persons aged 20–29 in Israel studied in universities and academic colleges. Their distribution according to localities was very unequal: in affluent localities, the majority of which are Jewish localities, the rate was 21.5%, compared with only 9.1% in Arab localities [15].

One of the main reasons for this is the lack of suitable opportunities for employment: many Arab academics find it difficult to find jobs in occupations suitable to their level of education compared to their Jewish counterparts. As a result, unemployment rates and unemployment rates are higher than those of Jewish academics, as are those who have despaired of finding work suited to their qualifications, and are therefore no longer among the civilian labor force. These gaps in education have implications not only for Arab citizens' prospects of entering the workforce, but also for their potential earning power and working conditions [15]. Between 1995 and 2002, employment rates among Arab men declined steadily by more than 10 percentage points. In 2020, rates for Arab men
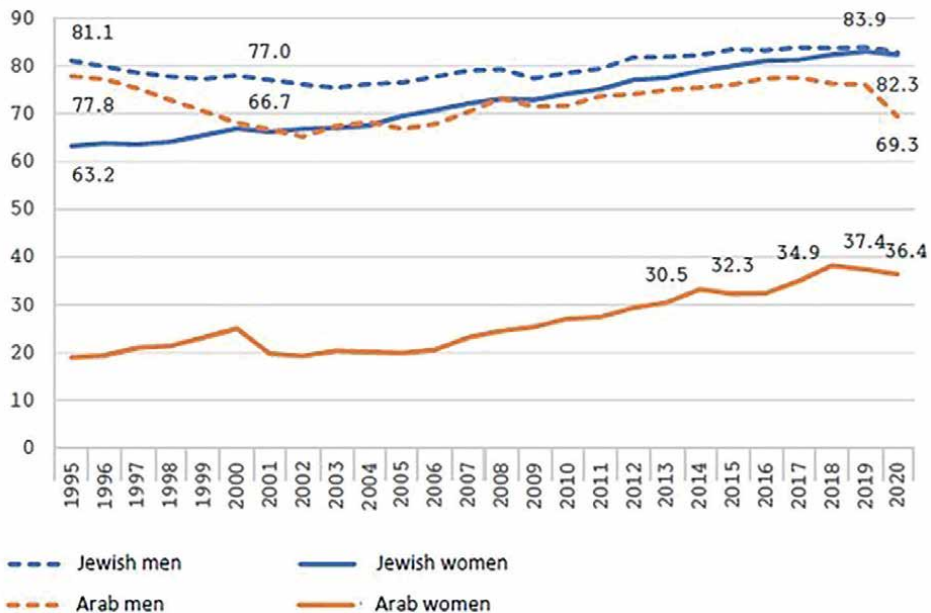
Figure 1.
Employment rates (ages 25–64), by population group and gender (%, 1995–2020). The Israel DEMOCRACY Institute. "Statistical Report on Arab Society in Israel: 2021". https://en.idi.org.il/articles/38540.

dropped sharply to a low of 69.3%. Similarly, employment rates for Arab women rose steadily from the mid-2000s. Between 2001 and 2018 the rate almost doubled (**Figure 1**) [6].

According to the findings of the Socio-Economic Index of Local Authorities in Israel for 2014, about 90% of the Arab localities are ranked in the first three clusters, which are characterized by the lowest values. For example, these localities are the poorest and are at the top of the list of unemployment centers in Israel, and in the four high clusters, there is no representation of localities [14].

Public investment in infrastructure in Arab towns is lagging behind investment in Jewish localities. Only a few Arab communities have been granted the status of development areas as they have received nearby Jewish settlements, and therefore private initiative in Arab communities has no equal chance of succeeding. Approximately 70% of the Arab employed persons work outside of their localities, in Jewish localities. As a result, Arab communities have not benefited from economic development; instead, they became "sleeping cities" because there was no economic growth [26]. This policy causes poverty that has a very negative effect on everyday life. One of the manifestations of the severe economic situation, which stems from high levels of unemployment and poverty, is the rate of waiving basic necessities such as food and clothing, housing and infrastructure, medical treatment and the purchase of medicines. The gap between Arabs and Jews takes on a tangible form: the difficult economic situation dictates more concessions among Arabs than among Jews in various spheres of daily life. The depth of the gaps is especially evident in health care: about one-third of the Arabs give up the purchase of medicines and supplementary medical insurance, compared with only one-tenth of the Jews; about two-thirds of the Arabs give up dental treatments or reject them due to the difficulty of providing them [27–30]. In light of the fact that the salaries of Arab employees are very low and are less than two-thirds of the national average. In the largest Bedouin town of Rahat, the rate of job seekers stood at 14.4% in November 2016. A similar percentage was also recorded in some of the largest Arab towns: Mgʹar (14.8%), Sakhnin (14.7%) and Umm al-Fahm (14.6%). In contrast, in most Jewish localities the unemployment rate was less than 5% [15].

Economists and researchers agree that government policy is a major factor in inequality and socio-economic gaps between Arabs and Jews [16, 17, 31]. Among other things, Hyder describes the policy of expropriating economic resources and transferring property, for example, through the Absentees' Property Law, as well as expropriating lands from their Arab owners and redistributing them for national Jewish needs [17]. In 2001, for example, Arabs owned only 4% of the state's land, and the share of Arab local authorities in controlling land was even smaller—only 5.2%, while the percentage of the Arab population was 8.18.42%. Of Arab localities is significantly smaller than the amount invested in Jewish localities [13].

Because of the policy of control and repression in the economic sphere of employment, socio-economic gaps have emerged, which are also reflected in the level of health. Health level reflects quality of life and, more generally, general class differences: quality of nutrition, environment, quality of residence, level of awareness of health risks, quality of transportation, quality of employment, distance from medical centers and more. The differences in quality of life are reflected in two main indicators, which are used all over the world to indicate health disparities: infant mortality and life expectancy. For example, the infant mortality rate in Israel in 2014 was 3.1. This rate ranked it 15th among the OCED countries, a rate that has fallen considerably since 1970, both among Jews and among Arabs. However, the current infant mortality rate among Arabs (6.4) is much higher (2.6) than among Jews [15].

The same is true for life expectancy at birth, which is relatively high in Israel: in 2014, the life expectancy of men in Israel was 80.3 years, placing the country in sixth place among the total of the OCED countries. The life expectancy of women stands at 84.1, although it is higher than that of men, placing Israel 12th among all the OECD countries. Moreover, overall life expectancy in Israel is on the rise. Nevertheless, the life expectancy of Jewish men is 80.9 higher than that of Arab men (76.9), while the life expectancy of Jewish women is higher than that of Arab women (81.1), which, as noted, cannot be separated from the prevailing policy of control toward the Arab population. The current infant mortality rate among Arabs (6.4) is much higher (2.6) than among Jews [15].

4. The socio-linguistic patterns

The socio-political context in general and political conflicts in particular has an impact on the linguistic-social (sociolinguistic) patterns in any given society. Language, therefore, is part of the socio-political reality, and not only reflects it, it also shapes it. An in-depth discussion of the role of the Arabic language in the Israeli public sphere in general and in the academic sphere in particular makes it possible to learn a great deal about the place of Arab culture in Israel, the power relations between Jews and Arabs in Israel, and the major difficulties that hinder a positive change in the situation [32]. As for the Arabic language, it is an official language in Israel, and the Arab citizens of Israel who speak it are an indigenous minority. Nevertheless, Arabic is a marginal language in almost all areas of Israel, inferior to its status in Hebrew and often from English, and sometimes it is completely absent from the linguistic landscape and the Israeli public space. Her absence from public space attests to the attempt to push her legs away. Although Arabic is an official language in the country, although many Israeli Arab students study at universities in Israel, and despite the importance of Arabic to create a shared and egalitarian space, the status of Arabic on the Israeli campus is still inferior. The academic space, which is mostly conducted in Hebrew, is not perceived as a common academic space for Arabs and Jews, but is identified as a space belonging to only one group. Since the challenges involved in promoting the Arabic language do not concern only the academic space, but also other spaces, a broad perspective is needed, which takes into account the cognitive resource and its connection to other spaces [33].

Language is a major barrier to employment in Arab society. Lack of knowledge of the language is a major barrier to the absorption of Arabs in the Jewish labor market, and a low level of Hebrew proficiency is also a major barrier to the success of Arabs in higher education alongside their absorption barrier in the employment market [32, 34]. The Arab students who study in higher education encounter all sorts of language-related difficulties that cause fear, pressure, indecision and frustration, and difficulty in integrating with Jewish students. Moreover, Arab students have problems with the ability to express themselves and express themselves in comparison to the Jewish students. This has many negative implications, and this affects how they appear to the lecturers and to the dominant population. You can feel the pressure and fear of their ability to speak that affects their grades too and often causes their failure in school [33, 35, 36].

Language is also a barrier in the psychometric test, the examination written in Hebrew, reflecting the Hebrew culture and translated into Arabic (often translating does not accurately reflect the questions) and weighs at least 50% in admissions to

institutions of higher education in Israel. In some circles, it is even higher. The gap in the scores of examinees between those who came to it in Hebrew and those who came to it in Arabic today exceeds 100 points on average [1]. This leads many young Arabs to acquire their education abroad, mainly because of their inability to cope with this discriminatory examination, and unfortunately, when they return to Israel after completing their studies, these young people find it difficult to integrate into the local labor market. From the periphery, and especially to the Arab society, to acquire higher education and to be accepted as equals by society [21].

Motivation for work is personal, the barriers are often community. The language problem is not a cultural barrier of individuals in the community, but rather a community barrier that prevents many people in Arab society from going to work. The Hebrew language is an employment need and an important component in the ability to enter the job market successfully, since it is used for communication in the workplace. Lack of sufficient control in Hebrew leads to a lack of self-confidence, and because of the language barrier, job seekers in the Arab population refrain from applying for certain jobs. Since most of the businesses in the Arab society are family, those who do not find work in their place of residence have to work in large factories where knowledge of Hebrew is significant [33, 35, 36].

5. Education and pedagogy

A look at Israel society reveals several deep divisions among the population of which the Arab and Jew division is perhaps the deepest, in part because of the ongoing Arab–Israeli conflict, in part because of the religious divide, and in part due to the hegemony of the Jewish state, which excludes Arabs [5, 37]. The Arab population is heterogeneous (Muslims, Christians and Druses), very diverse and needs are different within the education system, as well as in other areas. Arab society consists of urban populations living in Arab and mixed cities and villages (some of which are not recognized by the authorities for national political reasons), and groups with different socio-economic levels, different cultural norms, different levels of religiosity and tradition, and different levels of education and higher education [15]. Arab society in Israel operates in the context of a Jewish majority state. This leaves it in the hands of the majority, while the minority group has limited involvement in its contents.

Arab society views education as one of the main challenges in its shaping, development, promotion and preservation of its character and heritage, and therefore its involvement in increasing educational matters. Since the establishment of the State, there has been a significant increase in the level of education of the Arab population in Israel. In 1961 almost half of the Arab population was uneducated, in the 1970s their proportion dropped to about a quarter of the population, in the 1990s to one-tenth of the population, and in 2016 the percentage of the uneducated in Arab society was less than 5% [38]. The education system in Israel is composed of sectors according to nationality and degree of religiosity. The Arabic education sector is divided into four groups: Arab, Druze, Circassian and Bedouin, with each sector having a unique curriculum. One of the major changes taking place in the education system is the growing trend of the Arab student population, and in 2017 Arab students constituted 25% of all students in Israel [26].

For many years, the education system in the Arab society has suffered from neglect and discrimination, manifested in large gaps between it and the education system in the Jewish society, both in resources and achievements. The large gaps between the Arab education system and the Hebrew education system are due in

large part to unequal distribution of budgets, lack of buildings, classrooms, laboratories in sports halls, and the inadequacy of existing structures and facilities in many Arab schools [3, 16, 17].

A comparative view of educational inputs shows that the Arab population actually receives very few resources compared to the Jewish population. The average number of students per class is higher in Arab education, the smaller the weekly hours per student and the lower the level of teachers, the average annual investment per Arab student is smaller than the average investment per Jewish student. In contrast, an Arab student receives only NIS 20,000 which reflect a clear preference for the Jewish population [7].

The geographical delineation of the government into national priority areas in education resulted in deliberate discrimination, Status of National Priority Areas For purposes of educational benefits; only four Arab localities were included Small seas. Therefore, the differences in educational inputs in the shadow of the achievement indicators in education, such as the percentage of those entitled to a matriculation certificate who meet university entrance requirements (23% in Arab education and 47% in Hebrew education), and the percentage of students in post-secondary institutions indicate deep gaps between Jews and Arabs. Thus, for example, in the 2014–2015 school year, 21.5% of those aged 20–29 studied in affluent Jewish localities for a first degree at universities and academic colleges, and the corresponding rate in Arab localities was 9.1%, the lowest among all the localities examined [15].

In the last decade, Arab society is getting along better and succeeding in closing the gaps in higher education. Students from Arab society currently excel at all higher educational institutions, a fact that reflect the Arab society's ability to deal effectively with the policy of control and marginalization. Alongside doubling the number of bachelor degree students, are witness to impressive increases in students enrolled in advanced degree programs (more than 200% for master's degree programs). Thanks to a comprehensive, holistic program, personal accompaniment and guidance, beginning in high school and continuing through advanced degrees, as well as a significant investment of resources, and thanks to the increase awareness of the importance of higher education, and especially the integration of Arab female students (the percentage of female students in higher education today among women is higher than that among men), and to the special support programs for Arab students in pre-academic preparatory programs and those studying for bachelor's degrees, and social support, which were led by civil society organizations and associations that contributed successfully to remove barriers that have existed for decades (**Figure 2**) [6].

The higher education system is the key to integration into society in general and the Israeli market in particular. Doubling the number of Arab students, including in leading fields of study, is a revolution resulting from intense efforts on the civil organizations and associations, and in turn leads to narrowing gaps and integrating them into the workforce. The civil organizations and associations in Israel Arab minority expanded their support and programs for integrating Arab students over the last years with emphasis being placed on the directing young people toward self-realization and toward professions for which there is market demand: Sciences, high-tech, psychology, and other fields, which are underrepresented in Arab society (**Table 3**).

Among the reasons for the significant gap that still exists between the two populations is the teaching methods and learning skills of schools in Arab society relative to schools in Hebrew education. In general, the teaching method does not encourage critical and independent thinking patterns. In addition, the study societies in Arab schools
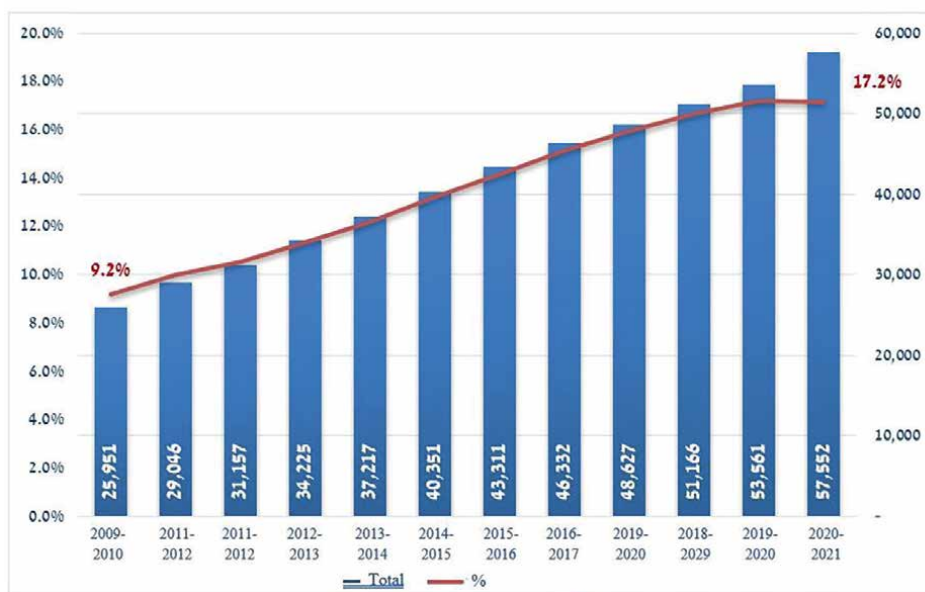
Figure 2.
Multiyear view over a decade: The number of students from Arab society in higher education. Council for higher education. "Higher Education Accessible to Arab Students". https://che.org.il.

Years	Bachelor's degree	Master's degree	Doctoral degree	Total
2008/09	21,142	2855	380	24,377
2009/10	22,268	3270	413	25,951
2010/11	24,346	4243	457	29,046
2011/12	25,843	4847	467	31,157
2012/13	28,481	5233	511	34,225
2013/14	30,969	5692	556	37,217
2014/15	33,571	6165	615	40,351
2015/16	35,758	6929	624	43,311
2016/17	37,441	8197	694	46,332
2017/18	39,160	8708	759	48,627
2018/19	41,087	9247	828	51,162

Council for higher education. "The accessibility of higher education to the Arab society". https://che.org.il.

Table 3.
Arab Students by Discipline (2008–2018): Council for higher education site.

lead to the expectation of the Arab student to receive assistance from teachers in coping with learning difficulties [7, 11]. These characteristics become a double obstacle in higher education - once in the study itself, when the nature of the learning in the schools does not prepare the Arab student for the skills required in the higher studies, and once again the expectations of the students from the institution and the lecturers [38].

Therefore, a gradual transition to pedagogic innovation is required, which means a fundamental change in the perception of teaching and learning, and a change in the relationships and relationships between the teacher, the student and the knowledge, which become one network in which each person learns and contributes his abilities. This transition should include school renewal, that is, re-examination of the school space and its adaptation to changing learning methods, and the creation of spaces that expand the boundaries of the classroom and enable the creation of diverse learning processes [39]. The situation in the vocational and technological education in Arab society is much more difficult, and although in recent years, there has been a demand, especially by industrialists, to expand vocational education at the high school level. This demand creates the impression that vocational education is a world that is disappearing. It is true that today's vocational education is smaller than it was until the 1990s, when it comprised about half of all high school students in Israel, but even in last years (2015/6) it is a very significant track, which 36% of the Arab student's study, and 45% of the students Middle Jews. The vocational track is a main track in high schools in the periphery and today also in Arab localities [15].

The vocational track is largely run by the state, but by non-governmental networks that have specialized in professional education over the years. These networks became a central factor in the early years of the state, when the Ministry of Education found it difficult to provide adequate educational services in the periphery and Arab communities. Schools in these localities suffered from high dropout rates and very low rates of high school education [40]. The vocational education underwent many changes in Hebrew education. Today, in many of the technological tracks one can study for a full matriculation certificate; For example, the list of subjects in which a matriculation certificate can be examined at the level of five units is now increasing, thus expanding the possibilities of admission to institutions of higher education. On the other hand, the criticism of professional education in Arab society is great, and especially the high dropout rates in these schools. Students' achievements are much lower than those of the same track compared to Jews (40.7% of all high school graduates of the academic track in the Jewish society began academic studies until 2015, compared to only 18.8% of the same track in Arab society [15].

6. Summary and outlook for the future

Despite the conflict between Jews and Arabs in Israel, in recent years, the issue of the national rift and its impact on the relations between the Arab minority and the Jewish majority has not been repressed. Civil society associations prepare memos for the public and the government, and basic studies are written in institutes and universities. The crop of all this activity is presented in books published in recent years on an impressive scale. The conclusion reached in all these works is uniform and, without a doubt, worrisome: it becomes apparent that the gap between the two sectors is widening and the tension between them is worsening. Therefore, the main objective of the state's actions must be to achieve genuine equality for the Arab citizens of Israel, and to find ways that will enable them to express in their public life their culture and identity in a proper and dignified manner. The importance of the state's official recognition of the cultural and national uniqueness of the Palestinian Arab minority in Israel, and the granting of the state's legitimate legitimacy to its unique identity and needs in this context as well [5, 41, 42].

Civil society in Israel is showing signs of increasing activity in the field of employment of the Arab population. The main activity of the civil society is focused on the employment of Arab women, the promotion of Arab employment in the public and private sectors, and the promotion of the establishment of Arab industrial zones [41, 43]. The resources available to civil society organizations that deal with the employment of Arabs are limited. The result is a partial activity with a limited overall effect. The activity relies mainly on limited funding in terms of its scope, which derives from donations [5, 6, 41, 42]. Cultivating and strengthening civil society in Arab society strengthens the status of the Arab population. The activity in the field of civil society seeks to promote values of social responsibility and moral commitment in all areas related to Arab society. This activity takes place in forums of various types: research groups, discussion groups, round tables on key issues on the agenda for social change, local and international conferences, as well as evening seminars open to the public. This civic organization creates power levers and long-term changes in Arab society in all its diversity and diversity.

In conclusion, it emerges from the above that the differences between the status of the Jews and the status of the Arabs derive not only from socio-economic factors, but also from ethnic, national and geographic affiliation, and from the policy of control and repression against the Arab population. In other words, the status of the Arab citizen is closely related to belonging to a nation. These intertwined factors draw the map of the gaps between Jews and Arabs in Israel. Therefore, this policy should be changed to the policy of the modern democratic and modern countries - a policy based on egalitarian pluralism, at the center of which is a harmonious and full equality between majority and minority. Such a policy will lead to an investment in the Arab human capital, education and education of the Arab population. The education of the Arabs in Israel has a decisive influence on their employment status - in terms of wages, the rate of participation in the labor market and the rate of unemployment, as well as the level of occupation and productivity. In addition, it is important to significantly upgrade the investment in education in the Arab society, which as mentioned currently suffers from under-investment at all levels of education, from daycare centers and kindergartens to higher education. In addition, emphasis should be placed on content that will help in future integration into employment, such as strengthening the control of Hebrew and English and providing necessary skills in the high-tech industries. There is room for many policy measures in this area. Efforts should be made to increase financial resources at all levels of education, with an emphasis on considerable investment in early childhood and primary school. In addition to increasing resources in the Arab society, it is important to increase integration with the Jewish population, which will in the future help the Arab society become more successful in the labor market. This can be done by meetings between students and teachers and by integrating Jewish teachers in the Arab system and Arab teachers in the Jewish system. Such measures will act to reduce the cultural barriers and prejudices that exist in both sectors.

The main objective of the Israeli state's actions must now be to achieve genuine equality for the Arab citizens of Israel, and to find ways that will enable them to express in their public life their culture and identity in a proper and dignified manner. The importance of the state's official recognition of the cultural and national uniqueness of the Palestinian Arab minority in Israel, and the granting of the state's legitimate legitimacy to its unique identity and needs in this context as well. The differences between the status of the Jews and the status of the Arabs derive not only from socio-economic factors, but also from ethnic, national and geographic affiliation, and from the policy of control and repression against the Arab population. The status of the Arab citizen is closely related to belonging to a nation. These intertwined

factors draw the map of the gaps between Jews and Arabs in Israel. The policies in Israel should evolve to the policies of the modern democratic and modern countries - a policy based on egalitarian pluralism, at the centre of which is a harmonious and full equality between majority and minority. Vigorous action by the government in conjunction with the Arab population and in partnership will work to reduce pressures, create a stronger sense of belonging of Arab citizens to the state, and serve as a basis for equal and equal citizenship.

Farther more, the policy should lead to deeper educational transition and to school renewal, that is, re-examination of the school space and its adaptation to changing learning methods, and the creation of spaces that expand the boundaries of the classroom and enable the creation of diverse learning processes. In addition to increasing resources in the Arab society, it is important to increase integration with the Jewish population, which will in the future help the Arab society become more successful in the labour market.

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Perspective Chapter: Preparation for Transformative Work Environment – Faculty Member's Responsibilities for Promoting Life Skills among Learners at the High Education Institutions

Mesfer Ahmad Alwadai

Abstract

The paper explores the preparation for transformative work environment: faculty member's responsibilities for promoting life skills among learners at the high education institutions. This research is a descriptive study that explain the faculty member's responsibilities for promoting life skills among learners at the high education institutions. By using qualitative research approaches, the researcher analyzed number of studies and governmental reports. Findings revealed that the main responsibility of higher education institutions is to prepare learners for professional life by enhancing college students' life skills through different educational strategies such as project-based learning, workshops, and long and short-term training in the business work environment. Also, faculty members are responsible for developing learners' efficacy in their lives and about. This study is among the first to investigate, particularly, the preparation for transformative work environment: faculty member's responsibilities for promoting life skills among learners at the high education institutions in the context of Arab countries.

Keywords: transformative work environment, faculty Member's responsibilities, promoting life skills, high education institutions, project-based learning, workshops

1. Introduction

In the twenty-first century, higher education plays a pivotal role in preparing learners to become more active and independent, responsible members of society and trustworthy people. So, it is experiencing a reconstituted change because of the change in standards and curriculum, science, technological innovation, globalization, international agreements, privatization, human rights, urbanization, and industrialization [1]. Learners nowadays encounter many obvious economic difficulties along

with social, emotional, and environmental issues, such as global warming, criminal attacks, suicide, lack of job security, and poverty.

As research indicated, adults are considered the fundamental elements of the construction of modern society due to their physical and intellectual capability. However, in the real scenario, the majority of the adults do not have the ability to make use of their potency in a convenient way due to the deficiency of guidance and motivation [2] while the notions such as communication skills, objective setting, the way of meal preparation, budget allocating, and time management are often anticipated to be dealt with along the way as students get mature [3]. Expeditiously, the number of social problems has increased such as drug abuse, sexual harassment, and alcoholism and affected the development of empathy with surrounding and having harmony in society. As [4] opine that it is crucially significant that college graduates get in the manpower with the skills to realize sustainable prosperity and success in a competitive and swiftly alternating revolutionary world. However, in accordance with variously conducted studies, today's college graduate often endeavors to join the workplace but are unequipped to satisfy the requirements of today's employers. Also, there is growing frustration over the high-education learners' dearth of the necessary life skills. So, those challenge requires immediate and effective responses from a socially responsible system of education while learners lack home life support to deal with the future life after graduation. High education institutions are working in a complicated and refined era due to the rapid and radical change in terms of personal characteristics and business workplace requirements. In the Fourth Industrial Revolution (FIR), improving learners' core competencies which include personal, intellectual, emotional, and social competencies is the highest priority for preparing learners to be more competitive citizens in the world business economies [5]. Also, it leads to respond learners' needs, to fulfilling their interests. Therefore, ministers of education around the world have acknowledged and identified the necessity and requirement to develop their educational systems to make life skills education a compulsory element and mandatory component in schools' curricula and through extra-curricular activities to help learners navigate the world [6]. Consequently, this topic has been an investigation problem for various studies such as [7] and the like. The main purpose of this research was to identify the significance of preparation of higher education learners for a transformative work environment by improving their life skills. Also, the research aims to investigate how life skills are realized, operationalized, activated, and implemented in teaching and learning strategies to enhance and improve life skills in the high education context.

2. The concept of life skills

Life skills were defined as scopes of transferable skills wanted for everyday life, by everyone, that help people burgeon and succeed. Scholars described the demand and need for life skills including social skills which were the most important life skills [8]. On the other hand, life skills are defined as the psycho-capabilities of pliable and positive behavioral practices that empower persons to behave productively according to the requirements and challenges of everyday life. They are generally classified into three universal models of skills containing: intrapersonal skills for data analysis and use, interpersonal skills for personal agency development and self-management, and interpersonal skills for productive communication and interaction with others. Furthermore, life skills are focused on as a behavior change or behavior development

approach designed to address the balance of three areas: knowledge, attitude, and skills. Also, it is psycho-capability for pliable and positive behavioral practices that help individuals act adequately with the requirements and barriers of daily life [9].

3. Classification of life skills

World Health Organization (WHO) suggested various forms of life skills composed of communication skills, interpersonal skills, problem-solving skills, decision-making, critical thinking skills, creative thinking skills, and metacognition. It is so important for learners to manage their emotions such as success, failure, depression, loneliness, rejection, anger, anxiety, stress, and conflict within social relationships by raising their self-awareness of dealing with life change [10]. Also, empirical studies have been classifying the different types of life skills such as communication skills, management skills, and leadership skills [11, 12]. They listed several key elements that several information to becoming innovators and productive society members which are problem-solving, time management, responsibility, collaboration, flexibility, organization, confidence, communication skills, creativity, self-control, task initiation, self-direction, critical thinking, work ethic, and metacognition. Furthermore, international organizations such as UNESCO listed the ten core life skills, namely self-awareness, critical thinking, creative thinking, decision-making, problem-solving, effective communication, interpersonal relationship, empathy, coping with stress, and coping with emotion.

4. Strategies for improving life skills

While education is important, learning to lead life effectively is equally important. Therefore, the topic of life skills has been an important area of interest to researchers, theorists, and practitioners, however, higher education institutions are running out to meet national and international teaching standards from the scripted curriculum, and focusing on the standardized test benchmarked. Thus, learners were taught to possess, convey and regurgitate, process information, and convey to others, rather than, to communicate effectively with others, think creatively, and critically, act independently, and plan their lives. Incorporating life skills into the context of high education insinuations curriculum is a very crucial and viable solution to fill the gap between the different educational levels and to bridge the gap between the learners' qualifications and the demands of the business workplace [13]. Firstly, the notion of the modern trends of education center on building learner skillsets to make them capable, active, efficient, and successful in the workplace. They pointed out that in spite of the tremendous focus and attention from the academic institutions in terms of technical training of hard skills, those skills are still insufficient. As a result, there is an existing gap between the instructor's demands in evaluating tasks and the occupational market requirements [14]. Consequently, educational researchers state the significance of life skill instructions "hands-on, real-world learning experiences, increase academic achievement, help students develop stronger ties to their community, enhance students' appreciation for the natural world, and create a heightened commitment to serving as active, contributing citizens" [15].

Addressing these global challenges, researchers offer varied perspectives regarding methods to arrive at them. They argue that vital involvement in the available societal resources will boost the chances to pick up the threads to learn pro-social

behaviors and work skills, vocational education, and proneness beyond the school [16]. However, believes that the focus of attention should be on the development of communication, and commitment to follow personal goals [17]. Researchers agree to attend to communication and goal setting, as socially competent people can use social experience for their goals and needs while understanding the needs and goals of others [18]. The role of teachers is critical to promoting life skills that prepare students for adulthood. it is so significant that the teaching process should be integrated or complemented with various supportive interventions which could be provided through effective pre-college awareness and school reformatory paradigm [19]. They evaluated the incorporation of movement into life skills' implementation and discovered the inclusion of movement while developing life skills not only assisted in physical gains but also mental health gains. The researcher recommended students be provided the freedom to move around the room, or the opportunity to work with a fidget device, as kinesthetic activities stimulate creativity and work production [20]. Likewise, Meyer and Wurdinger assert kinesthetic activities are crucial, alongside recognizing student interests in the acquisition of life skills. They express the importance of putting student interests at the center of life skills lessons and goal setting. Thereby, students are working out what they actually possess because they personally select convenient schemes and learn to observe themselves as they set objectives, resources, and schedules that assist them to achieve duties [21].

As the research indicated that the main responsibility of higher education institutions is to prepare learners for professional life by enhancing college students' life skills through different educational strategies such as project-based learning, workshops, and long and short-term training in the business work environment. Also, faculty members are responsible for developing learners' efficacy in their lives and about. According to [22], life skills training enhances critical thinking abilities, which further impacts living life actively, being responsible on the job, and in future planning too. Also, they assert the effectiveness of life skills training in increasing mental and physical health and pro-social behavior and decreasing in behavioral, social problems, and self-destructive behaviors. During their investigation, include life skills in students' curricula. The results of this study suggested the extraordinary capability of teens for positive promotion and flexibility. Verandae and Rao proved that skills training enhanced their psychosocial competencies. Also, life skills training is effective in preventing a wide range of problems such as substance abuse, teenage pregnancies, and violent bullying, and promoting self-confidence and self-esteem among adolescents [23]. In the Roodbari, Sahdipoor, and Ghale' study, it showed that life skills training has a positive effect and improves social development, and emotional and social adjustment, suggesting an increase in the compatibility of children and public health [24]. Furthermore, they noted significant improvement in interpersonal relationships and a reduction in aggression and behavioral problems. Qualified faculty members employ effective teaching strategies like collaborative learning, and project-based, and pay more attention to the interdisciplinary approach. These approaches have a profound impact on the development of young learners such as challenging learner levels, and motivating and inspiring them by making use of their learning styles. Wurdinger Qureshi determined that if faculty members give learners the freedom to shape their learning trip and to work on a relevant and meaningful project to them so it would improve their life skills promptly. However, the life skills development process is intricate and not easy because these skills require time to develop and learners should frame their practice environment outside the higher education institutions [25].

The national educational standards emphasize the expectation that higher education learners must master skills such as prioritizing, proper social skills, and collaboration. It is so difficult that the learners would recognize the approaches of using or administering these skills beyond the educational debates unless oriented intentional instruction was planned for [26]. So, faculty members should encourage students to communicate and participate effectively in collaborative discussions (one-on-one, in groups, and teacher-led). This kind of discussion helps learners to build their personalities, improve language acquisition, to understand skills, and express their ideas, and issues and persuasively.

5. Benefits of improving life skills

Training life skills build learners' characteristics, emotions, physical health, and management skills like leadership, self-confidence, self-management skills, and maintaining friendships with their friends. There has been more focus on the effect of improving life skills for learners, regardless of their educational level such as providing learners with skills to cope with life change and increasing learners' motivation, decrease their behavioral and social problems, especially with alcohol and drugs use, and attain socially responsible behavior [27]. In this regard, training life skills influence interpersonal relationships and maintain decent interpersonal commination. Moreover, training life skills improve learners' ability to involve themselves in life challenges by practicing different opportunities for life experiences. It addresses and incorporates the needs and interests of learners. It is worth noting here that integrating life skills into high education curricula such as speaking out about their ideas, sharing their experience and knowledge, working together with their friends, and decreasing aggressiveness and hostility among learners and felt more satisfied and gratified [28].

Along similar lines, reciprocal reactive life skills training via instruction will definitely assist youth to deal successfully with difficult life situations [29]. In point of fact, life skills close the gap between basic functioning and capabilities. It strengthens and reinforces the ability of an individual to meet the needs, and responds to the demands of present-day society. Thus, a relevant life skills education helps cope with the above issues in a manner to get the desired behavior practical. Moreover, the importance and effectiveness of life skills education in the development of students' social, emotional, and cognitive development and dealing with their psychosocial problems as issues were carried out by [30]. One key point is that life skills are not important in enhancing the professional development of learners, but enabling them to be adaptive and connect with the environment and foster self-efficacy and self-management [31].

6. Barriers to improving life skills

While it is more difficult to get a job opportunity and to enter the job market since employers focus on how many life skills you acquire such as leadership, management, high-level thinking skills, communication, self-discipline, and teamwork. Although the importance of improving life skills, there are many challenges met by higher education institutions is how to provide those skills and knowledge to learners that will support and sustain them for long-term jobs [32]. Teaching life skills

is not an easy educational process because each learner is different which means what is being taught to someone may not be of interest to others. Learners come with different social-economic statuses, different cultural backgrounds, ethics, and values as included by physical, ethnic background, or cultural circumstances and cultural environment. Faculty members should be aware of these differences as they may impede the coexistence process in terms of communication and working with others.

There are several barriers to improving life skills among teachers, education, educational systems, schools, parents, students, and society. Regarding the teachers as a barrier to enhancing learner life skills, teachers sometimes concentrate on transmitting and conveying information to learners because they think knowledge would help learners succeed in the job market [33]. Retaining and comprehension knowledge use the lower- thinking skills level while learners should practice high-ordered thinking skills. High-ordered members tend to implement teachers-centered teaching methods to attain the learning goals and they have to focus on the overload of information in terms of the topic to be covered. Also, instructed topical program is a time box which means it must start and finish at a specific time. Therefore, constraints limit faculty members' freedom to provide learners with extracurricular activities to flourish their experience. The main obstacle is the learning environment that hinders faulty members' abilities to use the most effective teaching methods such as a workshop. Today, the increasing population lead create several educational problems like school crowds, insufficient labor, and lack of learning resources and clarification learning materials.

7. Building learners their personalities through Saudi Visions 2030?

Prince Mohammed bin Salman Al Saud is the Crown Prince and Prime Minister of Saudi Arabia. He also serves as the chairman of the Council of Economic and Development Affairs and chairman of the Council of Political and Security Affairs, announcing the Saudi Vision 2030. This vision depends on the three main tenets which are a dynamic and strong society, a prosperous and affluent economy, and an ambitious nation. The Human Capabilities Development Program (HCDP) is the cornerstone and mainstay and plays a significant role in attaining a vibrant society strategy. This program identifies the necessary qualifications for youth learners, who would be active citizens in the local context and be more competitive globally. As mentioned in the HCDP document, the Saudi Government prioritizes preparing citizens with the required life skills, values, and knowledge to position the Kingdom of Saudi Arabia as a global leader and to compete worldwide. This program achieves three goals which are: "developing a resilient and strong educational base for everyone, preparing for the future labor market locally and globally, and providing lifelong learning opportunities" [33]. The Minister of Education focuses on the development of fundamental and future skills including both hard and soft skills, instilling values in inter-faith and, social backgrounds, and building knowledge for building learner experiences. Also, it identifies serval indicators of meeting the requirements of the future local and global labor markets. Accordingly, it is noted that learners should be prepared for fundamental modern change, and marketplace challenges, and practice the different types of learning strategies. Consequently, faculty members should build learners' characteristics, values of moderation and tolerance, and management skills.

8. Conclusion

This paper explores the preparation for transformative work environment: faculty member's responsibilities for promoting life skills among learners at the high education institutions. Findings revealed that the main responsibility of higher education institutions is to prepare learners for professional life by enhancing college students' life skills through different educational strategies such as project-based learning, workshops, and long and short-term training in the business work environment. Also, faculty members are responsible for developing learners' efficacy in their lives and about. This study is among the first to investigate, particularly, the preparation for transformative work environment: faculty member's responsibilities for promoting life skills among learners at the high education institutions in the context of Arab countries.

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Section 3

Evaluating Educational Access

Ensuring Meaningful Access to Powerful Knowledge to Enable Success of Students from Rural Areas in the Field of Science in Higher Education: A Decolonial Perspective

Nkosinathi Emmanuel Madondo

Abstract

The dominant discourse in higher education which rather simplistically equates hard work with success, serves to privilege the already privileged, with their background in particular forms of knowledge and learning. The assumption that success in higher education could largely be explained through meritocracy based on hard work and bright minds only favors middle class students, globally, because of their privilege. This is because students' enrollment in universities is linked to benefitting from powerful knowledge, but this is likely to be merged with the acquisition of the knowledge of the powerful, the middle and upper classes. Consequently, students from lower class backgrounds are unlikely to draw on knowledge resources that they bring with them to university. Through empirical qualitative data drawn from discussions of 2nd year science students at a historically white and privileged university, I argue that knowledges outside of the academy, for example, in rural homes could be used as a pathway to access powerful knowledge. I draw on the theoretical lenses of critical realism and social realism to develop an understanding of students' prior experiences. A decolonial gaze is adopted to critique how university space, physical, ideological, and intellectual, could constrain access to powerful knowledge.

Keywords: powerful knowledge, access and success, critical realism and decoloniality, higher education

1. Introduction

Powerful knowledge is abstracted from immediate context and helps us to understand the world, to solve problems and to imagine things not yet in existence [1]. However, accessing powerful knowledge is sometimes conflated with accessing the knowledge of the powerful with the result that success of marginalized students,

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including those from rural areas is likely to be compromised, and thus, maintain the status quo. Knowledge of the powerful is the knowledge that constitutes the interests of the powerful and ignores those of the marginalized. In that way, curriculum is likely to be ideologically designed to protect the interest of the powerful and/or the privilege and so, theories about the world are explained from their perspective [1]. What counts as academic knowledge and its production is thus decided by the powerful.

Crucially, [1] Boughey and Mckenna (2021) question who gets admitted into the academy and who flourishes within it. Based on [1] Boughey and Mckenna's conceptions of the knowledge of the powerful, it is possible to see that universities are set up to favor one social group over others, typically the children of middle class educated caregivers, often white [2] because they occupy powerful positions in society. Consequently, marginalized students or non-traditional students, those who are first generation to enter the gates of university, because of unequal social structure, seldom, if at all draws on knowledge resources and practices that they bring with them to university since they find them unrecognized and/or unrewarded [3].

It is possible to see how the idea of privilege plays out in higher education. In relation to this point, [1] Boughey and Mckenna (2021) for example, presents a scenario of students' performance data. They argue that students' performance data shows the same persistent patterns year on year, that is, regardless of the university, subject area or the program, black students do less well than white peers. These authors continue to argue that the only way to account for this is to draw on 'a model of a student as a social being' and show how universities are set up to favor one social group over others. From this understanding, it is possible to see that education works to reproduce society not transform it as it is. It is in this area where this chapter is situated, that is, making a proposal for the need to reconceptualize the problems of skewed educational outcomes that favor the already privileged, and this is true in the field of science at the research site [4, 5]. It is based on this brief discussion that I argue that it is imperative to understand the model of the student as a social being in higher education, even in the field of science, as it could provide us with more nuanced, more complex and more credible explanations regarding students' success and failure in higher education, than simple understandings that are based on the construct of meritocracy [6].

To realize this imperative, I draw on critical realism as a theory of reality and how reality is known. Through the tenets of critical realism and social realism, I am hoping to show that it is possible to bring the relativism of human experience into the objective world of science, thus, provide more complex and credible explanations regarding students' success and/or failure [6].

I also draw on decolonial theory as an explanatory framework to help us understand why students from marginalized backgrounds, including those from rural areas are unable to draw on knowledge resources that they bring with them in knowledge generation in science classrooms. Rural areas in South Africa are characterized by poor infrastructure and students from these areas usually fall in lower class backgrounds, thanks to institutionalized segregation policies of apartheid regime in South Africa.

Methodologically I draw on approaches that are qualitative in nature, for example, Action Research.

A decolonial gaze is presented and argued for to critique how university space, physical, ideological, and intellectual, could constrain access to powerful knowledge of science and thus constrain success. In the process, I am hoping to make a case for the recognition and reward for forms of rural originated knowledge and knowledge practices which seems to be currently ignored in higher education.

Data that forms part of the analysis in this chapter was drawn from 24 2nd year science students from a historically white and research-intensive university in South Africa, in the field of science. The data is based on focus group discussions. The question driving this chapter is, thus, *What practices shape the learning habits of second year science students from rural backgrounds at a South African University to enable access to powerful knowledge?*

I conclude this chapter by suggesting new ways of reconceptualizing problems of skewed educational success in the field of science in higher education – a conceptualization which questions the common sense understanding of students' failure or success which is in the idea that students must have the right attributes and be motivated enough to succeed [7, 6], an idea which absolves university space as profoundly historical, social, political and cultural. What we need is a realization that students' success or failure cannot just be explained on the basis of meritocracy but through a social theory to understand a myriad of factors, which are likely to be social, to enable success or failure to access powerful knowledge in higher education. This chapter is thus a continuation to a contribution that has been made by [1, 5] on the limitations of meritocratic explanations on students' success and failure in higher education. But my focus is on the most marginalized students in higher education, students from rural areas in South Africa, often black.

This chapter thus aims to do two things:

To present an argument that knowledges or knowledge forms outside of the academy, for example, in rural homes could be used as a pathway to access powerful, principled or abstract knowledge of science that enables access and success, and thus maintain lifelong learning.

To engage with structural inequalities that have conditioned, though not deterministically, life chances of students from the marginalized background in South Africa, backgrounds which have profound implications for epistemic access, success or failure.

2. Structural inequalities shaping what we can and cannot do

People engage in different positions in the social world. This engagement may take place either through voluntary or involuntary positioning or even through birth, and consequently, infuse people with certain powers or lack thereof [8]. Peoples' life chances are thus structured in certain ways because of these positions. Accordingly, people are born into contexts of advantage or disadvantage. Crucially, linked to positions are certain material resources and therefore vested interests. There is thus a tendency that people occupying the positions may wish to maintain their positions and interests or may wish to improve their situation in life. Social group and the positions that people occupy could thus be interpreted as a structure that leads to events, observations and experiences, explicated in the following sections through the tenets of critical realism and social realism.

When it comes to education in general and/or higher education in particular, the life chances that are conditioned by the positions that people occupy in society tend to impact on who get access to the academy and who flourishes within it [1]. In relation to this point [1] have observed the tendency of universities to privilege the already privileged in international higher education landscape. According to [1] the available statistics on the issue of privileging the privileged in various counties demonstrate that socio-economic factors play a significant role in effecting students' success. Based

on this understanding, it is possible to see that accounts of success or failure that are based on meritocracy cannot be adequate.

The interplay between class, race and geographical location is likely to be experienced differently by students who have been historically and structurally conditioned into positions of advantage and/or disadvantage. To better understand these positions and their impact on students' success and/or failure in the higher education context in South Africa, particularly in the field of science, [9, 10] Bhaskar's (1978, 1979) critical realism and Archer's [11–13] (1995, 1996, 1998) social realism have been adopted as useful means to understand events and experiences related to higher education in South Africa and identifying the structures and mechanisms from which those events and experiences emerge.

3. Critical realism and social realism

3.1 Critical realism

The preceding sections have shown how inadequate meritocratic explanations could be in explaining students' success and/or failure in higher education. Using Roy Bhaskar's [9, 10] (1978, 1979) critical realism and Margaret Archer's [8, 11–13] (1995, 1996, 1998, 2000) social realism is hoped to provide us with insights that we could use in an exploration of a social account of learning that foregrounds the agency of students as social beings, in the process consider the intersection of such agency with social structures. I now turn to the theory and to the work of Bhaskar and Archer and discuss some events that challenge common sense understanding that those students who work hard and have the right attributes will do well in higher education. I am not in any way suggesting that the right attributes and working hard are not necessary for success, but these cannot be enough, hence, a need for complex and rigorous explanations.

What we really need to consider as we plan a piece of research is the nature of 'truth' or 'reality' itself. This 'truth' is sometimes located in positivist paradigms or is quantitative in nature. Quantitative approaches to research usually use observations, measurements and experiments as a way of knowing. The role of researchers adopting this approach is to 'discover' or 'uncover' the truth or reality by embracing an objective stance to ensure that they do not 'contaminate' or affect what it is they are trying to see and, thus, know. They assume that an absolute reality or truth' exists, out there, independently of human thought and existence.

Alternatively, qualitative research is in interpretivist paradigms as it often seeks to collect people's opinions or beliefs in relation to a phenomenon, using questionnaires or interviews. In this type of research observations can be included in the form of close descriptions. The challenge with this type of research is that data analysis is mainly based on respondents' interpretation of their interpretations – as a researcher you interpret what has already been interpreted by respondents on a particular phenomenon and so, you end up having multiple truths or realities. As a researcher, what do you do with these multiple realities – is a question that critical realism provides an answer to, as I hope to show?

Clearly, both approaches are based on very different assumptions about reality itself and how we can come to know it.

It is for these observations that Bhaskar's [9, 10] critical realism was chosen in this chapter as it allows us to see beyond the limitations of both positivism, which is realist

in the sense that it acknowledges a reality independent of human activity and relativism with its acknowledgement of multiple realities. To do this, critical realism posits 'layered' or 'stratified' reality.

In critical realist terms, the first layer of this reality is termed the 'Empirical' which is the layer of experiences and observations made through the senses. Experiences and observations are acknowledged to be multiple in that they are constructed based on our past histories, as such, are understood to be relative. The second layer, the 'Actual', is the layer of events out of which experiences and observations emerge. To this end, both 'Empirical' and 'Actual' domains or levels of stratified reality constitute the world we are familiar with, based on our daily experiences. From this understanding, it is possible to recognize the relativity of knowing that is shaped by a myriad of human experience. However, Bhaskar goes beyond this in his identification of a final layer of reality, termed the 'Real', that is understood as an intransitive, unchanging world consisting of structures and mechanisms from which the other two layers emerge.

In critical realism, the term 'structures' is used to refer to social structures, such as gender, education, language, curriculum and so on that regulate access to material resources. For example, the curriculum can be understood as a structure that regulates access to knowing and to knowledge and, in doing so, it does not treat all equally [1], given the structural positions discussed above, as will be shown later in the findings section. Amongst other things, the term 'mechanisms' can be used to refer to discourses or sets of ideas contained in language and other sign systems that constrain the way we think and, thus, act.

The interplay of structures and mechanisms at the layer of the 'Real' allow for the emergence of events at the level of the 'Actual' and experiences and observations at the level of the 'Empirical'. The interplay of structures and mechanisms which are operative at the level of the 'Real' allow the emergence of events at the level of the 'Actual' (what people do, can do or cannot do). A person from a different social group may never have suffered deprivation of access to material resources or access to mainstream discourses valued in formal higher education, sch as an ability to make an argument or reading a textbook, with the result that they are likely to function well at university than others who come from different conditions.

If a person has been raised in a home where arguments and explanations are encouraged and privileged, then it is possible that the lecture or literacy practices that require explanations and making an argument (these are valued in science knowing) could experience the lecture differently to another person who had experienced an upbringing where these literacy practices were not similar to those valued in science (though they may exist in a form different from that of formal higher education), as shown in **Table 1** below.

Key to Bhaskar's thinking is the notion of emergence as shown in **Table 1**. For example, the ability to read or not read or make an argument may or may not emerge, because of the interaction of structures and mechanisms at the level of the 'Real'. This means that structures and mechanisms have causal powers, but these are not strictly causal. Causal explanations are simplistic in that they absolve a myriad of factors that could be at play to account for a particular event or experience. What we need instead of a neat causal system, in which X causes Y, and therefore if we incentivize X we will achieve Y, or in the case under investigation, if students are motivated enough, intelligent enough then they will succeed, is to visualize a complex system in which changing any one part will influence all the others [1].

Empirical (Experiences and observations)	Experiences of students from rural areas in science classrooms emerging from observations. Stories based on the world students are familiar with, that is, rural home daily practices. These were garnered through focus group discussions.		
Actual (Events)	Practices emerging from rural home socialization; practices emerging or acquired from higher education; both rural, mainly from lower class backgrounds, students and middle-class students have a tendency to draw on different practices in navigating university space, academically, socially and ideologically and these are likely to be shaped by home socialization.		
Real (Intransitive, unchanging world consisting of structures and mechanisms from which the layers of the 'Empirical' and the 'Actual' emerge). The interplay of the structures and mechanisms is tendential to the emergence of the events in the 'Actual' domain. These structures are comprised of generative mechanisms that can be actualized by agents or can remain dormant. Archer's theoretical lens allowed me to investigate the Structural Emergent Properties (SEPs), Cultural Emergent Properties (CEPs) and Personal Emergent Properties (PEPs) leading to the events at the level of the 'Actual' and experiences at the level of the 'Empirical'. These may involve social class; education system (curriculum); location; Discourses; beliefs, values and practices, shaping what students can do or cannot do as they engage with their science lectures.			
Structural Emergent Properties		Cultural Emergent Properties	Agential Emergent Properties

Table 1.
Significance of CR and SR analytical framework, adapted from [14].

So, the emergence or non-emergence of experiences is related on the interplay and interaction of the class, geography, economy, education system and so on, with other mechanisms and structures. In critical realist research, we are therefore looking at the tendency of a structure or mechanism to make something emerge. In this chapter we thus look at why students from rural areas and often black experience the science curriculum the way they do and how this tends to constrain access to powerful knowledge and thus, unfavorable educational outcomes, as opposed to their city dwellers, middle class and often white peers from educated homes.

An ontological frame of critical realism, thus, helps us realize the stratified nature of reality and the relative manner of our experiences emerging from the reality that is intransitive [9, 10] – inaccessible directly but which nonetheless consists of structures and mechanisms that are 'real' in the sense that they exist regardless of whether or not we even know about them or acknowledge them.

3.2 Archer's social realism

The value of Archer's [8, 11–13] (1995, 1996, 1998, 2000) work is that it allows us to look more closely at the level of the 'Real' and to look at the interplay of structures and mechanisms at the level of the 'Real' over time.

Archer uses the concept of 'analytical dualism' to help us look at this interplay closely. She refers to social structures as 'the parts' and includes culture as a 'part'. Material goods are accessible through social structures such as education. If a person is educated, for example, is likely to get a good job that will enable them to climb a social ladder and earn a good salary that will help them access material goods like

education. Furthermore, this person is likely to develop new relationships because of their new educational status and will most likely spend their time with other educated persons. The phrase 'likely' suggest that such new relationships are not simply a matter of cause and effect as someone 'uneducated' formally does not signify that they have not learned at all during their lives [1] or cannot develop relationships with 'educated persons'.

The term 'culture' is defined in numerous ways, for example, it can be defined using the concept of discourse. A discourse is a set of ideas, beliefs, values, concepts and theories that are loosely bound together. From a critical realist perspective, discourses are mechanisms at the level of the 'Real' that enable and constrain the emergence of events and experiences. For example, in many countries of the world, a discourse of 'widening participation' can be discerned. Amongst other things, this discourse argues that higher education is not for the elite and that the universities must open their doors to students from a range of socio-economic backgrounds. The existence of this discourse then leads to events such as new ways of enabling physical access into universities leading to various experiences and observations. The idea of widening participation, for example, is accepted by some on the basis that higher education can no longer be seen as only or mainly enrolling students who are assumed to be intellectually fit for the university, without considering a myriad of factors at play, and this aspect is particularly important in relation to the focus of this chapter. Others oppose the idea of widening participation because the university is structured to enroll intellectually fit students.

For Archer, structure and culture constitute 'the parts' as has been alluded to above. For many decades sociologists have considered the relationship between these and 'the people' to explore the extent to which people do indeed have the agency or ability to do what they want to do or whether they are constrained by the social and cultural conditions in which they live.

One view of the world, termed by Archer ([8], p. 40), for example, 'Modernity's Man' privileges agency over structure and has its roots in the Enlightenment, a period which focused on the use of reason to better the human condition. The view of the world consistent with 'Modernity's Man' is of 'man' creating the social world and, thus, of both structure and culture as derived from the exercise of reason. Archer also terms this view 'upwards conflation'.

The alternative, 'downwards conflation' involves the idea that 'man' is created by society. Linked to social constructionism, this view sees all human action and thought as conditioned or shaped by society. Theorists as diverse as Levi-Strauss, Durkheim, Marx, Lacan, Foucault and Derrida had argued for the idea that 'man' is a product of society.

A third alternative, 'central conflation' is also made possible thanks to the work of structuration theorists such as Giddens who place equal weight on the systemic and individual aspects of social life. Archer is critical of central conflation on the grounds that the 'parts' (structure and culture) and the 'people' (agency) are 'clamped together in a conceptual vice' ([12], p. 87) or conflation. Agents are thus constrained to effect change at any given time.

To address the issue of conflation, Archer proposes the concept of 'analytical dualism' – put differently, for analytical purposes the 'parts' and 'people' must be examined separately to establish how and when each is activated and thus condition events and experiences at the level of the 'Actual' and/or the 'Empirical'. In other words, maintains Archer, to conceptualize the interplay between the 'parts' and 'people', each must be given distinct powers and properties actualized at the level

of the 'Real'. Significantly, in this way it becomes possible to state the properties of structures and mechanisms operating in the domains of culture and structure, cultural emergent properties (CEPs) and structural emergent properties (SEPs) and also of agents' own personal properties (PEPs), as shown in **Table 1** above.

The concept of emergence is crucial in critical realism and social realism in that structure, culture and agency each have properties and are able to exercise power in their own right. Most importantly, it is through the interplay of these properties and powers that results, not deterministically, to the emergence of events at the level of the 'Actual' and experiences at the level of the 'Empirical'.

Writing about agential powers and properties, Archer, particularly looked on the role of agency. She postulates that agency is exercised by means of what she terms the 'internal conversation' or 'reflexivity' ([15], p. 7). In making this argument she insists on a distinction between humans and other elements of the natural world in that humans can design 'projects' defined as 'any course of action intentionally engaged upon by a human being' (ibid). According to Archer, projects 'promote our concerns; we form 'projects' to promote or protect what we care about most' (ibid). Based on Archer's argument, there is thus a need to accord properties and powers separately to the 'parts' and the 'people'. The implication for this is that agents or human being also have powers to pursue their projects as they converse internally. These powers are exercised in relation to the powers and properties of structures and mechanisms in the domains of structure (SEPs) and culture (CEPs).

In the context of higher education, Archer's thinking could be profoundly useful to see how agency works. We could for example observe a student from an impoverished rural area in South Africa doing things, like going to the library every day, that she hopes would enable her to obtain her Bachelor of Science qualification, being shaped by her position in society. A qualification is hoped to better her position. To pursue the project of getting a qualification, the student would need to draw on 'the parts', both social structures and the set of beliefs, values and so on that constitute the cultural system. The student would exercise her personal powers and properties in relation to the educational system to complete her schooling and on various other structures (including home socialization – this is possible for some students than it is for others such as responding to questions in class – this is usually the 'norm' in middle class educated homes where parents seat around dinner table with their children and ask questions about how one has experienced that particular day or ask questions to which they already know the answer). She would draw on beliefs in the cultural system related to the value of getting a qualification and on those related to what can constitute learning or 'good' learning to succeed at university; this could include home socialization where children are allowed to be autonomous or independent, as shown in **Table 1** above. Working independently is key to gaining access to the ways of knowing in science.

The point of all this is that the student is consciously exercising her own personal powers as an individual to pursue her project of getting a qualification and bettering her chances in society. However, the students' agency can be constrained by structures like her position in society or class, which could be realized as a condition of coloniality particularly in the global South, understood as a mechanism at the level of the 'Real' that could constrain what people can and cannot do.

3.3 A decolonial gaze

Before engaging with a decolonial gaze, it is important to first engage with coloniality, understood as a condition that sees inferiority to anything or of anything

other than Euro-American or white. When [16] Ndlovu-Gatsheni (2013) writes about coloniality of being, for example, he notes race as an organizing principle in that whiteness gained ontological density far above blackness which essentially meant the dehumanization or disintegration of being for blackness. When it comes to higher education there is a potential for curriculum to present dominant colonial epistemic logic with its power to alienate, marginalize and exclude people and black bodies in particular. In relation to this point [17], posit that pigmentation is not the issue of concern. Rather, the issue is to be structurally positioned into position of power and privilege on the basis of whiteness, a social construct. This positionality then enables one to be historically and culturally positioned to exercise control and authority on what get learned and how it is learned. Through the construct of race, we can begin to better reflect on marginalized groups' experiences, including those of students from rural areas in higher education [18], in the process begin to see how the education system privileges the already privileged, through the language of learning and teaching, through proximity between primary socialization and secondary socialization.

Writing on 'Decolonial turn' Vorster and Quin (2017) [19] have also argued that this positionality of privilege, particularly in historically white universities in South Africa, continues to privilege some forms of knowing and being that are based on colonial Western conventions informed by white institutional culture. In the process, black students' being, and cultures are rendered invisible in curricular design and pedagogic practices. It was for this reason that students collectively challenged the inappropriateness of values underpinning disciplinary knowledge, contends [19]. For example, ([19], p. 39) explain: "For black students, curricula and pedagogic processes are often not aligned with who they are as people, and it is not possible to divorce themselves – their being – from what is taught and how it is taught". Clearly, university curriculum and pedagogic approaches are likely to present complementaries for some students and contradictions for others [8], even in the field of science. While some students may experience a contradictory curriculum structure and enactment, it does not mean that as people they are dormant. They have the power to exercise their agency, even though circumstances may be difficult for such.

If I could take a moment and reflect on the collective of students in most South African universities during 2015 and 2016. This collective organized itself during the #FeesMustFall and #RhodesMustFall campaigns of 2015 and 2016 to object on curriculum design and pedagogic practices that are imbued with colonial legacies which renderes black students' being, values and cultures invisible. The agency of students was thus enabled to challenge these concerns regarding coloniality of being. Coloniality of being ensures that what students bring with them from home, particularly students from marginalized backgrounds is not seen as valuable for knowledge generation in higher education [16]. From the example of a collective above, it is evident that students wanted a recognition regarding competing views of knowledge and a representation of how different knowledges are generated, including that of science. Clearly curricular is intertwined with social practices. We know this because curricular is not designed from nothingness but is designed from how particular disciplines have been historically canonized by emphasizing certain values and dispositions that are legitimated as credible in knowledge generation in those disciplines. So, disciplines are social practices but it, unfortunately, happens that some forms of knowing, being and acting are credible than others. The unfortunate part is that these are shaped by colonial legacies of disregarding other forms and valuing some which, at most, favors values of middle-class students from educated homes, often white, as it has been alluded in previous sections. The power of students' agency, particularly

black students in South African higher education system, and students from rural areas normally falls into this collective, was observed in terms of the possibilities of wanting to bring in higher education competing views of knowledge and on knowledge generation as opposed to those that are mainly based on Western traditions, in this way, it is possible to draw on the knowledge resources that students from rural areas bring with them to higher education to harness access to powerful knowledge of science that is abstract and principled. The point is here not to discredit the legitimated ways of knowing in science or higher education but to open space for a dialog and contestation of different ways of knowing.

A decolonial gaze was therefore useful to critique how the university space, physical, intellectual, and ideological could constrain genuine access to forms of knowledge valued in higher education in the field of science, if some sectors of the student population could not see themselves, their identifies and cultures being represented in structures like curriculum. The important point to note here is not to take anything from rural homes and use it in knowledge generation in science classrooms but is to bring these into the classrooms, critique them against other ways including those which are formally accepted in higher education, vis-à-vis, if we can know how to use these rigorously in curriculum design and enactment.

It is important to note that meritocracy where it is hard work and motivation, or intelligence is not assumed to be insignificant for student success, but we cannot dismiss the fact that socio-economic background is profoundly influential in enabling students' success more than any other factor [1]. From this realization it is possible to see how the structural positioning of race and class can operate as a mechanism in constraining other students' opportunities to succeed, in the process, the university and its structures including, but not limited to, curriculum continues to reinforce unjust relations of teaching and learning, and this chapter is an attempt to highlight these to those interested in teaching and learning in higher education, particularly in the field of science.

4. Methodological considerations

Data in this chapter was generated through Participatory Action Research (PAR). PAR is considered a subset of action research, which is the "systematic collection and analysis of data for the purpose of taking action and making change" by generating practical knowledge ([20], p. 264). PAR as a methodological framework is often located in a relativist position because as a researcher you ask people questions and they give you answers and you observe them, for example, in the case under investigation, rural students' accounts of their experiences and habits of learning from rural contexts and observations of these. Because this data was relative – multiple truths emerged, the use of critical realism and social realism was then useful in accessing or coming as close as possible to structures and mechanisms that led to the emergence of what participants in this study experienced as constraining and/or enabling the teaching and learning of science.

In this chapter, PAR was used and focused specifically on the experiences of students who have lived and learned in rural areas and at a university. The aim of this qualitative PAR research study was to engage with an idea of acquiring science in informal settings of rural areas. The idea was to find ways of tackling this powerful, yet, informally learned knowledge practices infused with scientific bases. The idea was to establish how such knowledge practices could be part of curriculum design to

assist students in making sense of the abstract nature of science by drawing on what students already know, but, of course, critique it in the process for rigorous knowledge generation. In particular, how students gain epistemic access to higher education given their peculiar lived home learning experiences. The details of these experiences and observations are discussed in the findings section below.

24 2nd year science students who participated in this study were given time to engage with the idea of acquiring science in informal settings of rural areas. The reasoning behind was to find ways of harnessing the informally learned knowledge practices, with scientific underpinnings, to see how these could be contextualized and aligned to assist students make sense of the abstract nature of science. The idea was to open-up ways of learning to allow and enable students draw on what they already know so that they could see themselves, their identities and cultures represented in structures like curriculum, to give them hope in that what they already know was also valuable in knowledge generation, as well as a sense of belonging.

Participants had to choose an event that they saw as important, that they could associate with learning from rural contexts, either in churches, family and so on. Participants were asked to provide a narrative regarding such an event. They were then divided into groups of 4 and each group was asked to comment on each other's narratives, and these were later deliberated on in a larger group for probing. These stories were audiotaped and recorded, in the process, the question driving this chapter was answered, more details are provided in the findings and discussion section below: *What practices shape the learning habits of second year science students from rural backgrounds at a South African University to enable access to powerful knowledge?* Critical realism, social realism and a decolonial gaze were able to provide complex explanations regarding the events of success and/or failure than simple explanations based on meritocracy.

5. Findings and discussion

This section engages specifically with findings from participants, including mechanisms in place before they joined university and after they have joined the university, in the process, consider the practices that shaped their learning habits whether these could be used as a leverage to access powerful knowledge of the discipline of science. As such, this section locates the events that may have led to clashes or interactions between participants primary home socialization and secondary academic socialization, and how these might have played out in the teaching and learning environment.

This section also looks at how agency of the participants was shaped at the research site and how this affected their participation and success. In addition, I will show how institutional culture embodied in language, technologies, pedagogies and relationships between staff and students influenced students' sense of belonging and their academic progress and trajectories, thus enabling and/or constraining epistemic access or access to powerful knowledge of science.

The findings below express the ideas presented above. The findings are grouped into two different themes that emerged during focus group discussions.

6. Religious practices: critical thinking

One of the themes that emerged during focus group discussions related to religious practices in rural areas. Although the findings from this theme demonstrated some

level of tension between participants' religious practices and their rituals, the tension that was observed indicated that they were critical of issues, which is a useful skill to have in the sciences, a practice that is crucial for accessing the powerful knowledge of science. When they were asked about their critical incident from home before and after they have joined the university, for example, one of the participants pointed out that they needed to make a choice between following home rituals or spirituality based on Christian religion. Such choices presented a predicament for the participants because they had to either allow themselves to be ostracized by family and community when they chose spiritual beliefs or not to follow the path that they thought was the correct one for them.

Clearly, there were tensions highlighted from focus group discussions based on one of the important events from home (and the university), participants demonstrated awareness of these tensions and so, had to choose between the two competing views between culture and religion. As a critical thinker these are the issues you are most confronted with and must make informed decisions. This was highlighted as participants could observe, understand, and present different sides of a situation. It is important to note that the positionality of a person is important in any social encounter, including teaching and learning interactions. However, in an academic science environment what is more crucial is the ability to distance oneself from the phenomenon under discussion or investigation to cater for objectivity and not contaminate the investigation with personal biases. In this way it is possible to engage at argumentative level in a clear and logically presented argument. Although the idea of being objective could not be clearly identified from the responses of the participants, some elements of critical thinking that could be valuable in making arguments in science were identified such as the awareness of opposing views and deciding. This aspect is important when making arguments in science as one needs to consider a different viewpoint on the issue and still be convinced, based on evidence, that one view is worth considering than the other.

In critical realist terms, the information from the participants is what the participant said but this was an interpretation of her experience or event. The question that a critical realist would ask in this situation would be 'what the world of the participant was to say what she said?' Put differently, what are the structures and mechanisms that may have led to what the participants experienced as a tension observed in the focus group discussion. It is possible to see that what the participant said or experienced was or is shaped by her geographical location understood as a structure at the level of the 'Real' as well as beliefs about rituals and religion. So, this experience could be used as an example, amongst others, or referred to when teaching about critical thinking or making arguments in science classrooms.

Other critical elements that emerged from the geographical rural area of the participants that had to do with religion were also identified when they were responding on the things that they value based on religion. One participant was able to realize the subjectivity of a person in such situations, because people are different, they cannot all value religion in the same way, in the process they were able to draw a conclusion based on different views about religion. Others supported the idea of religion while others opposed it in favor of home rituals.

The focus on religion and home rituals is not the issue, this must be pointed out as one might ask, how is this relevant to science ways of knowing. What is important in this discussion was the critical element of building an argument that was also highlighted in that two people can hardly value the same thing. While it is true that science must be reproducible, it is also true that two scientists might look at the same

phenomenon and get different results. What is important is not to discard different findings but to ask the question why these different findings. It might be possible that another's experiment was not rigorous enough or there might have been a human error and so on. The point here is to show students that critical thinking in science is about thinking clearly in a logical way, not influenced by our personal passions and preferences. The fact that the participant raised an issue of drawing conclusions, is crucial, as this is what scientists do after conducting experiments. Examples like these could be used when teaching about critical thinking, making arguments and drawing conclusions in science to act as a pathway to access powerful knowledge of science. Obviously, science is not as simplistic as these examples, but these can enhance participation in classroom.

There is thus a potential for rural students in science classrooms to exercise their agency by drawing on what they already know in making arguments or thinking critically in the context of science and enable access, not only to 'what to know' but most importantly to 'how to know', as making informed decisions, arguments and thinking critically, not affected by personal biases is an important way of knowing in science.

What follows then is a further analysis of the knowledge resources that students from rural areas bring with them into higher education. Through this analysis, we can also see the response to the research question driving this chapter. This analysis allowed an establishment of the proximity and potential interactions between home socialization, known in literature as primary Discourse and secondary socialization also known as academic Discourse [21]. The point is to identify the key conditions that emerged in the analysis as either constraining or enabling the agency of students as having the potential to be legitimate knowers in science classrooms based on what they bring with them from rural homes. One participant indicated that there is so much to learn from their culture. However, this learning is slowly slipping away because they do not usually have conversations with their parents about cultural issues and so, lose the space to ask the questions about 'why' certain things are done in a particular way and the significance of that. Participants felt that they are losing most of this valuable cultural knowledge that makes them who they are as people as there will be no one to ask once their parents are no more.

From this realization there seemed to be a situation where participants are contradicted concerning university values of soliciting the 'why' question since asking or talking with parents was not considered in everyday conversations. Based on this contradiction, explanations and descriptions which are valued in science way of knowing seem to be lost. As such, it is possible to see that these students would find it a daunting exercise to effectively participate in formal settings that involves teaching and learning where explanations would be required, particularly in science.

What is also clear from the data is that we can observe that there are some events from rural home environments that have a potential to constrain the agency of students to participate effectively in knowledge generation. These events could be realized as emerging from the condition of coloniality of being, a condition that trivializes cultural being of blackness. Through this mechanism rural students are made to believe that anything indigenous is not worthy of being valued, let alone as valuable scholarly way of being or knowing.

The brief deliberation above has shown some tensions concerning university values and home values. This was important to note as not anything and everything from rural contexts can just be used as a pathway to access powerful knowledge. While this is true, those aspects that could be useful should be considered as there could be potential value in assisting students to effectively participate in science

classrooms. In relation to this potential value participants indicated an important method of knowing in science, that is, observation. They pointed out that before one can learn to count, possibly at school, they can learn pattern association, for example, when herding cows in the field. By observing the horns and patterns of the cows, they could tell if one cow was missing, without counting them. They also indicated that elders have advanced knowledge of the seasons and so, would observe these and would know when and what to plant, on which type of soil yet did not go to school for these. They, however, pointed out that, regretfully, these practices are not recorded, which is a disadvantage. So, their wish was that they could draw on these knowledge practices as they engage with their science studies, in the process, record these so that they are not lost.

What was observable from such participants' narratives was a sense of interaction between methods valued in science and practices from rural homes such as observing cows in the field. Such an example could be drawn upon in teaching about observation and could be critiqued based on careful and rigorous observations. Also, a distant proximity between home socialization and secondary academic socialization was also observed where students could not ask their parents about the things that they were observing from their rural surroundings. Asking questions is the most important aspect of learning in science and it is possible to see how this inability to ask question could constrain the development of agency of students from rural areas in science classrooms.

Based on the discussion above, it is pertinent to note that in middle class homes from educated families children are likely to be socialized, either wittingly or unwittingly, by their parents into the norms and values underpinning interactions involving teaching and learning [22]. In these homes it is normal for parents to ask questions, sometimes to which they already know the answer. When children get these answers right, parents would applaud their children, otherwise ask them again and again until they get it right. From then on, children learn that being asked a question to which the answer is sometimes apparent is normal and if you do not get it right the first time, that is also normal and so, are not afraid to make mistakes because it is part of the learning process [22]. Both parents and children may not be consciously aware of these practices, but these practices become their way of life, their primary socialization [21]. When these children encounter the event of asking and responding to questions at school or university, it becomes a continuation of their primary socialization and so, there is proximity between primary socialization and secondary academic socialization [23], and thus the likelihood for them to succeed. [24].

As the data from participants' discussions and evidence from literature is showing, practices that are normal and valued, in middle class families like the ones described above, and which are normal and valued in higher education are not always apparent in rural homes as most parents are not educated and do not usually spend time asking questions from their children. It may not be surprising then to find these students struggling to respond to questions in classrooms because they are simply not used to such experiences. Then, what we can do as academic teachers would be to build on practices that these students bring with them, practices which could have a potential for meaning making like the ones discussed in the previous sections of this chapter. We need to make these ways obvious to and for students by opening multiple ways of constructing knowledge in science. Of course, these cannot be taken in a narrow sense – they must be critiqued and then contextualized for powerful knowledge generation. We need to make judgments on what could be viable and relevant for the concepts we want to teach.

What we can learn from the above analysis is that university education, including curriculum design, teaching, and learning practices are imbued with values. These values are historically, socially and culturally situated. For example, language use in science emerges from a context and that context is not neutral. Academic language use relates to values about what can count as knowledge and how it can be known. It is about ways of being and Gee's (2008) [23] construct of Discourse does provide this understanding. As I have alluded to above regarding proximity between primary socialization and secondary socialization, understood in literature as Discourse, Gee defines Discourse as a saying, doing, believing, reading, writing and so on, meaning a combination that relates to a particular role in a particular social group. So, if one is a scientist hers or his Discourse will be related to values in the discipline. The language of science will then emerge from this.

Evidently, children from some homes where the ways of being, saying and believing such as asking questions or making an argument, will have an advantage over those from homes where these ways of coming to know are not part of everyday interactions. These are deeper theoretical considerations this chapter is substantially aiming to contribute towards and so, again, meritocratic explanations cannot be enough to account for students' success and/or failure in higher education when considering these deeper theoretical considerations.

Another theme that emerged from the group discussions was that of the role played by teachers in rural communities in shaping students' dispositions to navigate the university space with ease or with difficulty. This theme also shows that the events that took place before students enrolled at university are crucial to enable or constrain access to the ways of being valued in higher education, and this realization also disqualifies meritocratic explanations.

7. The character of high school teachers in conditioning students' agency

Some setbacks that currently engulfs some sectors in the South African schooling system were observed from the data. Some of these setbacks are shaped by the legacy of the then institutionalized segregation policies of apartheid regime, which could be understood as a mechanism at the level of the 'Real' that shape what people can and cannot do, say and cannot say, emerging from the condition of coloniality. Some of the events that emerged from this mechanism plays out in the education system. Black people, for example, had no voice, they could not raise any concern they might have had about the poor quality of education they were receiving [25]. They had to accept whatever was given to them. Similar setbacks of not being able to voice out one's concern were also observed from data in terms of how participants experienced their interactions with their high school teachers. Teachers did not appreciate being questioned by students if they wanted to understand a particular phenomenon or concept better. Regretfully, questioning is one of the important aspects of the ways of knowing and learning in science. When one observes something peculiar, they develop interests, then curiosity, then question why or how something is the way it is or happens the way it does. From then a hypothesis can be developed to be tested through experiments. If a student has been denied an opportunity to ask questions from school, the likelihood is that they will have trouble in engaging in such events later at university ([1], p. 24).

What could be observed from data was an emergence of schooling events at the level of the 'Actual' experienced by students/participants at the level of the 'Empirical'

as self-doubt or lack of self-confidence. This must be developed through interactions involving learning and teaching [25]. This development was clearly difficult for these students because, from data, participants mentioned that teachers made them feel inferior. These events and experiences could be understood as having emerged from the level of the 'Real' as a cultural constraint informed by teachers' ideas as they related to students.

Furthermore, at high school students had to accept whatever was presented to them, either by the teacher or from prescribed textbooks. There really was no room to question the information presented, which is different from what one finds at university where you must explain and justify the position you take on a particular issue. When at university, again, the likelihood is to experience cultural contradiction, intellectually and ideologically [12, 26, 27], in terms of what is expected of you as a student, that is, to be confident, question things, challenge positions and justify one's position and so on.

These events could be observed when agents' ability to work with the given culture (institutional culture) and structure (education system, curriculum) to pursue their own personal projects ([11], p. 8) is constrained. Surely, given these observations and experiences we can open possibilities as academic teachers to also make these students feel at home in the university space.

Based on the discussion above, it is possible to see that the problem of lack of confidence or effectively participating or asking questions or responding to questions in class, which is important for knowledge generation, is not inherent to the individual students [1]. Meritocratic explanations, suggesting that students fail because they do not work hard or not motivated enough or intelligent enough for university education cannot hold – such explanations are too simplistic [6]. But the interplay between social structures and mechanisms plays a huge role in enabling or constraining success and effective participation in class for some students.

One participant further mentioned that she lost marks during a chemistry practical because she mistakenly deleted her work. She could not ask the lecturer what to do in such a situation. Her understanding was that she could not ask the teacher, given her previous home and high school experiences. From this event, the likelihood is to blame the student, which could be true, but it could also be useful to dig deeper as to why the student did what she did or did not do what she was supposed to do because this was clearly not a matter of motivation or intelligence. The possibility could have been that the student was not used to working with computers because the geographical area where the student comes from is characterized by poor access to material resources, which could not be said for students from privileged positions or backgrounds. So, the proximity between primary socialization and secondary academic socialization could be observed as playing out here as well. This was also true when participants mentioned the effect of parents' level of education and how this played out as they engaged with university education.

Most parents from rural areas put their trust on teachers that teachers would do what they need to do to help their children succeed and so, they do not really know what goes on regarding the education of their children. They have no idea how to assist their children with homework and so on, unlike in the homes of the educated families where parents use modeling, for example, mimicking teachers by asking questions to which they already know the answer [26] an event most prevalent in formal schooling.

Children from middle class educated family backgrounds are exposed to more than 1000 words before they register for formal schooling and so, schooling becomes

something normal for them ([23], p. 25). Uneducated parents from rural areas, mainly from lower class backgrounds are then faced with a geographical structural disadvantage emerging from the apartheid mechanism, that had shaped accessibility for some and inaccessibility for others to material resources, including quality of life based on race and class [28]. As such, research corroborates students' success and the impact of home background [22, 21, 25].

My argument thus, is to propose that as university academic teachers, let us think beyond immediate experiences of what is normal [1], that when students fail, could be based on individual students as not being motivated enough or working hard enough but let us open -up and engage with social structures that might enable or constrain students' success or access to powerful knowledge of the discipline. Let us think about how students from marginalized rural backgrounds, for example, can be made to see that who they are could also be valuable in formal education including university education, particularly in the field of science. I think we need to recognize events and experiences of these students, some of which have been presented in this chapter because they affect how students participate in the education that is required of them. That is what this chapter is concerned with in that, based on data, it was clear that there were instances that suggested constraining events and experiences in the structural and cultural domain in enabling ease of access to the powerful knowledge practices of the university and science. There were also instances that implied positive practices and values from rural areas which could be useful for university education, including science education, experienced as critical thinking events and observations. Evidently, there is myriad of factors that could affect access to the norms, values, practices and principles underpinning disciplines in higher education to enable success and/or failure. Meritocratic explanations are too simple to account for such factors.

8. Closing remarks

The broader concern of this chapter had to do with the extent to which the science curriculum draws on students' home learning experiences to enable meaningful access to powerful knowledge of science.

I did not intend to measure students' competence, in this chapter, but to further contribute to the debates on re-conceptualizing racially skewed success rate of students in higher education, particularly in the field of science at the research site [3]. I hoped to show how students from backgrounds that are 'other' to middle-class educated families that gain access to higher education are mis-recognized and mis-framed [29] by structures like curriculum. Students' discussions have shown the need to argue for social understandings to explore the experiences of students in higher education.

Using critical realism and social realism it was shown, in the domain of culture, the lack of acknowledgement of tertiary learning as a socially constructed phenomenon underpinned by values about what can count as knowledge and how that knowledge can be known. Rather, learning, and achievement in learning, was viewed as dependent on factors inherent to the individual such as intelligence and 'skills.' Learning has been observed as a socially and culturally disembodied factor. The chapter has further shown that learning and teaching as disembodied in higher education needs to be contrasted with understandings of learning and teaching as social practices emerging from structures and mechanisms which could be constraining for some but enabling for others, based on home backgrounds.

Again, in the domain of structure it was shown how curriculum, geographical location and class could act as an enablement for some and constraint for others, which disqualifies simple explanations of cause and effect, that because one is not working hard enough or motivated enough, then they will fail.

As already noted, critical realists reject determinist views of the world favoring instead an understanding which perceives structures and mechanisms at the level of the 'Real' as tendential. This means that although the structures and mechanisms are enduring, the way they combine to produce events at the level of the 'Actual' and experiences and observations at the level of the 'Empirical', where social interaction occurs, cannot always be predicted.

A decolonial gaze was useful to show how the education system privileges the already privileged through the proximity between primary socialization and secondary socialization.

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Additional information

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Perspective Chapter: Evaluation of E-Learning Challenging Discourse – Prospects and Problems of Implementation

Yousreya Alhamshary

Abstract

The concept of e-learning is very attractive as a new learning paradigm, the effect which will be a positive one to the development of education in developing countries especially Egypt. E-learning in Egypt is still facing a lot of problems and challenges that are not only technological but also social and cultural and other technical ones. This paper explores another possible reason—a mismatch between learning orientation and e-learning design in the form of inappropriate implementation of teaching or learning strategies during implementation. So, the purpose of this paper is, firstly, reflecting on the application of e-learning in the courses of university learners in Egypt; secondly, to review empirical studies on solutions to problems encountered in university stage in relation to e-learning; thirdly, to analyze the social and cultural prospects of e-learning application for Egyptian students. Some suggested ideas are discussed, and some reflections are presented about new technologies used. Still, there are some cultural and social aspects about e-learning implementation in Egypt. Major problems are lack of experience, cost of developing courses or weak infrastructure, and negative attitudes of some families.

Keywords: e-learning discourse, e-learning implementation, social e-concepts, cultural e-concepts, e-learning implementation problems

1. Introduction

Contemporary societies have been improving and documenting their culture and civilization through education. In so doing, they are trying hard to improve their well-being and human resources through the educational system that provides them with working minds, which is the corner stone of the desired progress in life. Most scholars indicated how using technology in our life became a habit like eating or drinking by selecting tools as favorite items, but also preparing learners for the future in the same way. This may be achieved through active interaction with modern technology [1, 2]. That's why many websites are developed by instructional practitioners to be used in educational settings. These instructional practitioners hope to help

learners better develop their skills and learning in a flexible motivational learning environment. Thus, this paper is focusing on how this can be appropriately done through well understanding and clear vision toward e- EFL communication. More likely, how it is socially and culturally received and be accepted in Egypt.

During the pandemic, there was a big problem in communication with all people in Egypt, and only during this time the importance of using technology emerged. It was the first time that all social parties in Egypt felt that they are directed by force to use internet and mobile communication skills. Even academic communities are pushed to use different apps to get communicated with their students. They are convinced for the first time that technology may be the solution for many of their problems and not a problem. However, it is also the first time they feel unable to go up with the global educational system. Technology during the pandemic played the part of emotional supporter to all as students felt not alone. This is the starting point for the government to think seriously in applying e-learning in an official way.

2. E-Learning in higher education

Most university activities consist of assignments tailored to ask and to demonstrate what the learner has learned giving him opportunities to pose probing questions that his/her performance will answer [3]. A lot of studies compare face-to-face interaction and e-learning and reported that the latter has several benefits for learning in general. In e-learning, no need for turn-taking competition [4], it provides equal participation and allows shy or less motivated learners to interact with others freely and with more trusted performance [5]. Moreover, it controls their learning process. However, the degree of previous knowledge they have is an important factor, as the more they have knowledge, the better they can cope with their responsibility and appropriately do their job [6, 7]. A core point in e-learning environment is interactivity, which is very difficult to be gained in the traditional learning environment as indicated by some scholars [8–11]. Among the several benefits of e-learning, it is usually less expensive to deliver, it is self-paced (usually, can be taken when they are necessary), and it is faster (learners can skip material they already know). It provides consistent content updated easily and quickly. It may lead to an increased retention and a stronger grasp on the subject due to flexible and easy use of media. In addition, it is easily managed for large groups of students. Providing immediate feedback, encouraging interaction with other e-learners and e-instructors is of great benefit of e-learning. Moreover, since they can customize the learning material to their own needs, students have more control over the learning process and have the possibility to better understand the material, leading to a faster learning curve. The question now is how faculties can achieve all the previous benefits and others. The desired outcomes need well-organized steps.

3. The ideal online EFL learning and teaching discourse

As the term indicates, the ideal means the best that one can gain. There are many sides that should be considered in an appropriate e-learning implementation; namely technical, pedagogical, and social ones. The delivery is a set of quality benchmarks distributed along four parameters. These four parameters are:

• Course development and structure.

• Teaching and learning strategies.

• Institutional, student, and faculty support.

• Evaluation and assessment processes.

Output will never be the appropriate desired one unless the input is enough to get it. However, both have an equal role in reasonable success of an e-course. They form a complete matrix as outlined in **Figure 1** [12]. An e-course cannot be effective if not well implemented or managed as any deficiency in one of its components is clearly reflected on the other parts. This means that e-courses are not just content and instructors dealing with learners, but there are other supportive sides.

Thus, the challenge of e-learning in corporations is to facilitate learning in such a manner that technology, pedagogy, and organization are related and create a coherent, manageable, and logical system for learning activities [13].

It is important to bear in mind that technology involves basic components; infrastructure, methodology, and content as well as forming part of various working and learning activities. The organizational dimension applies to creating space and time for learning, setting goals, selecting participants, keeping track of their knowledge needs and preconditions, issuing evaluations as well. Whereas, the pedagogical dimension relates to teaching categories and their interrelations. What this paper implies is the balance among interacting, organizational, technological, and pedagogical components of a course as a whole system rather than separate spheres. Designing learning needs a complete understanding of what is inside the learners' mind and what will happen during learning. What steps they should pass on to reach the settled goals of learning. A designer should have a clear vision of what will happen when giving and idea or even text on a screen to their learning path. He also should predict the time they are ready to move on to the next step of learning and draw this well. A well-established background about the idea is critically needed for both sides of participants in the course—students and instructors. Staff being unaware of the
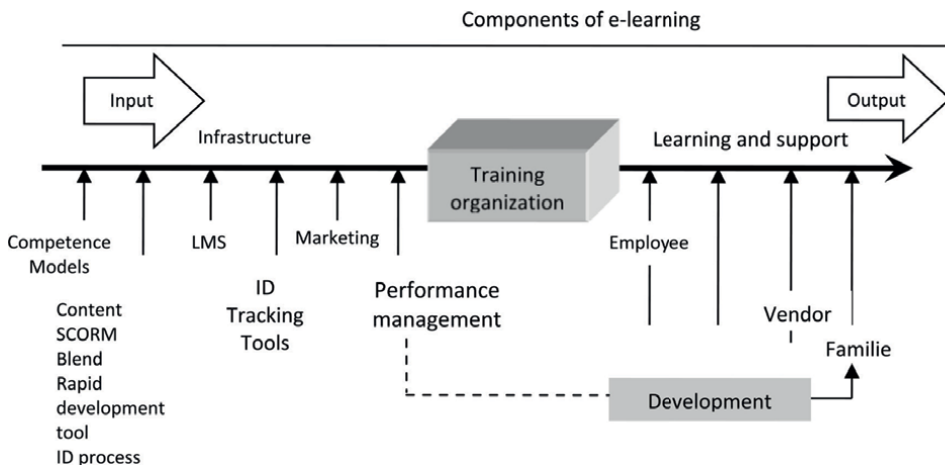
Figure 1.
Components of e-learning Implementation (Source: ([12], p. 9)).

implementation processes and steps sequencing may cause inappropriate application of the course. The idea of interaction for EFL learners is a core point, upon which all strategies of learning and teaching are built. Involving students in an EFL environment is critically needed to acquire the language skills as university students spent years learning about the language not applying it. They should have an environment that enables them to use real communication skills. Instructors may ignore recording students' responses or avoid it for technical reasons or lack of information about recent applications; hence, preventing them from a critical practice to check pronunciation accuracy and efficiency as will be shown in the discussion part.

4. Technical dimension

Any learning system should consider the context it is built upon, and for any online learning endeavor, discipline, department, faculty, institution, or company will have a mandate, a mission, specific goals, and values that must be considered when planning and designing an ideal system. Considerations of student demographics and other social and cultural factors would, of course, affect the timing and method of learning and teaching. With the best information and intentions, the results and experience rarely meet expectations, and thus, the ability to adapt and refine the online learning system is crucial. Most of problems in application arise from connections for using complicated developing applications. The application is not just browsing or clicking on links but also facilitating access by building courses with soft tools available to everyone and easier to use if modification needed. Most of the authoring tools used are open-source ones, which means depending on tutorials more than original application, which in turn limit the tools utilized in building the courses and hence may be the design not sufficient to display all learners' needs to perfect language skills. Skype application may be very useful in applying language conferences that learners may like, but at the same time it needs connection speed to continue listening that is considered the first skill that led to another skill mastery. Second life also may be a good tool to be used; however, inserting tools without knowing how to appropriately utilize it is not recommended. In an EFL course, each tool should be inserted to respond to learners' needs in using the language naturally. Thus, usability and accessibility are both critically considered when developing e-EFL courses. Technical development of the course should respond to learners' minds and needs in cumulative knowledge about language in order not to interrupt the mind flow of learning during language practice. A technical drop may cause blocking for a learner's mind about a specific point such as practicing vowels, which are considered also a nightmare for a lot of nonnative or even Egyptian learners. Another point that is interface design is a very important one. A lot of interfaces may prevent or cause negative attitude about the whole course due to links of windows or advertisements that may cause disturbance to learners.

5. Pedagogical dimension

At a general and highly abstract level, the process of learning in the e-environment and the planned learning activities consider the following aspects and interrelationships: why learning activities are being sequenced in this way; who the learners are (participants); what is to be learnt (content); how it is being learnt (strategies of

learning); where and when the learning activities are taking place (learning environment). These critical issues are well considered during course development and implementation. Consequently, it is unwise to do all these efforts without gaining what we aim at by mismatching between what we planned to and what we get.

The two big anxieties for many students are about tests and grades. If the students' anxiety level is high, they cannot see the connections. A clear scheme to determine the final grade will also alleviate some of their anxiety. Another important aspect in the implementation phase is the identification and handling of resistance for new ideas [14]. The implementation of e-Learning brings deep thoughts and ideas that are not welcomed by every individual or group within the related parties to the discussion forum. They must take part and write their reflections about ideas that they may be unfamiliar with. Concerns are often not expressed openly, but act as "hidden agendas," covered by other official arguments with peers [15]. Open and honest communication as well as sound good and stakeholder management is an important success factor within this phase. So, what is the appropriate method of e-learning implementation in such Egyptian learning environment is a main question that needs an answer in this paper. Monitoring is very important to get learners back to the track if they are going to commit mistakes. A lot of tasks are not executed for the lack of time and equipment, and once instructors have the facilities, they can do these tasks with accuracy.

6. Social dimension

The learning culture in society is of major influence on the quality of e- Learning; as cultural attitudes have a significant role on pupils' conceptual attitudes about using technologies, the way they learn or taught, and what they expect to do and gain from their educational system. So, it is not just transposing a teaching method that apparently produces good results in one country as this does not mean you will get an improvement in educational performance in another different country with different environment—as it could do more harm than good. Negative attitudes about internet and using e-learning are still controlling some areas in Egypt. To have the best solution for any problem, one should recognize the source and guarantee that all the related sides are well emplaced. So, this paper explains some of the problems found out during the first implementation of e-learning to university students and suggest some solutions to it to guarantee the best implementation of this innovative technology. So, what is the appropriate method of e-learning implementation in the Egyptian learning environment and how social environment affects the learning discourse are two main questions that need an answer in this paper. Implementation of developed e-courses indicated a problem of three core sides. The first is cultural social side, infrastructure side, and pedagogical assessment of learners' performance. Negative attitude of some parents causes or interferes in the learning process. Till now and after this revolution in technology, still some restricted families prevent their children from access to the internet as they consider it something of adverse effect on their children' morals and values. They may let them use mobile phones I5 and so on and do not allow internet connection at home. Ironically, there are others prevented from access due to distance or being out of service. Open societies allow individuals to access YouTube and interact with natives for this is the best way to acquire language. Rural societies do not let this happen, and hence, the application of e- EFL course may be in vain. They may prevent learners from contacting foreigners or natives for

fear of transferring unhealthy habits while the world now is trying to spread distinct types of cultures. This difference in ideas and thoughts about using internet access influences in turn using e-EFL courses. False concepts about using the internet and the open access may prevent learners from dealing with it or even create negative attitude about it.

7. Methodology

Analysis and descriptive research method is used in this paper. Different forms of information gathering have been used. Initially, a review of research literature was conducted as well as interviews with professionals on e-learning at Damanhour University, Bany Sweif University, and Port Saeed University, where a course of applied linguistics is lunched. The main question is: **what are regarded as social and cultural challenges and improvement areas for implementation of e-learning?** To answer this question, the investigator followed up courses' implementation around the last 2 years and collected a lot of comments around problems of implementation whether from learners or SMEs or even parents.

7.1 The sample

The sample in the present research is formed of fourth-year EFL learners at Damanhour University, who were studying applied linguistics course in the second term of year 2019/2020. They are alert with technology use enough to enable them to deal with the course and surf its content. They are supposed to acquire the language skills and can communicate using writing, speaking skills and hold discussion about language issues. Also, they are supposed to know applications of technology in EFL environment and develop their techniques as teachers.

8. Findings

Positive feedback comes from data on tremendous growth of computer equipment and internet utilization by EFL academic staff in the Egyptian universities and different contradicted ones from students. Language is not merely a tool by which information about mental states and feelings or facts are expressed. On the contrary, language is a "machine" that generates, and as a result constitutes, the social world even if it is virtual through website communities. The Internet has radically changed nearly every level of human experience in an incredibly short amount of time. The greatest potential for new information technology lies in improving the productivity of time spent outside the classroom. Meanwhile, modern technologies can very well be a double-edged sword. Results indicate that several aspects of teaching and learning did change, when the ratio of learners' performance increased in the final report, after dealing with the course via the suggested techniques. These results include the following points:

1. Instructors indicated a major need to well-training program about the Moodle and how to manage learners. Learners indicated lack of sufficient skills needed for surfing the courses and if they know they still need to know the best way for doing the activities. Parents, however, may or may not support the idea of using

technology, they still fear dealing openly with the internet due to cultural aspects and social restrictions mentioned above.

2. There was a clear increase in learners' use of the site access after each login. For many learners, the site became the preferred source for gaining knowledge about applied linguistics especially it contains sound files to comment and explain the content.

3. Most of learners viewed forum and chat as a primary tool for expressing their opinions and communication with others. Hence, the rubric for the internet tools usage changes the way they approached studying and learning. They started to even discuss their daily issues through the social tools such as graduation party or spending time with each other.

4. Most learners preferred to make drafting of their assignments directly on the computer, as it took less time to write and revise on a word page using word formatting tools. They gained self-conference using little jokes and funny situations.

5. Although they found it difficult at the beginning, typing became much easier and surfing the internet for more sources became a target for them and of great help for gaining information. They were trying to help each other who could not login by inserting comments on Facebook as a starting point to deal with the course.

6. It was much easier for the instructor to manage learners using the e-course, as learners kept in touch and followed up with much care their postings and replied on them.

7. Using the e-course performance rubric allowed all learners to work in the same activity at the same time with different performance on the task steps according to their individual abilities. Therefore, the instructor was given a chance to follow up learners' performance. They have an obvious plan about their tasks and how they are going to be evaluated. Consequently, directing their efforts and managing their time and practice of parts on the course.

Guiding learners during the e-course dealing is of great benefit for the course goal achievements. This means that the e-learning and teaching rubric was effective in improving learners' performance. E-learning in the Egyptian universities/institutions is still in the very early stage. There are many theoretical and technological issues that need to be explored. Therefore, the need for a tested quality management scheme is becoming crucial.

9. Discussion

One of the most problematic ideas in the e-course learners' performance is how to evaluate their performance. For example, what degrees can be given to them about writing e-mail or posting to the forum. And what degree of performance is accepted and satisfies the learning objective achievement. If he is informed about how each tool is used and how much effort must be exerted to activities, so he can manage the

learning process very well and can have the right decision at the right time. Timely, detailed feedback is provided to the performance of the assessed behavior of learners providing motivation and shaping behavior or mental learner constructs. Machine evaluations, in the form of online multiple-choice test questions or in simulations, can be effective learning devices [5]. However, most models of online learning also stress the capacity for direct communication and feedback from teacher to the student. This feedback is provided as an integral part of the discourse facilitation function of the online teacher. So, a suggested rubric is given to them to know how much effort can be devoted to a certain activity as shown in appendix [A]. The course of applied linguistics is directed to three universities students: Bani Sweif and Port Saeed Universities. Learners in both Universities are applying the tasks systematically or without monitoring to direct them if discussion is needed. They do not even respond to each other, and this was noted by some of Damanhour learners too. Topics for forum also are posted without any feedback from anyone. They did not suggest any of the links to help their colleagues, which means no communication is done. They only used web links to submit their assignment and even did not modify the text or comment on it. They just copied and put in a word file and submit it, which means they did not depend on their own style or even try to practice. Hence, losing motivation is clear in this learning environment, and as a suggestion to change this is to present some topics from outside related to social life or their daily activities using some picture comments or shortcuts.

Research on assessment in distance education has shown that rapid feedback is important for both understanding and motivation to complete courses. This point is totally neglected in our courses most probably because of university legal documents and rules of dealing with assessment. Learners still study online and paper-pen assessed for final exams. So, they lack a part of the motivation, which concerns a lot of learners. The traditional way of assessing learners still controls their minds as well as the idea of studying for exams only due to the fact that their courses' outcome is not linked to the daily work activities. Thus, the challenge of online learning is to provide high quantity and quality of assessment while maintaining student interest and commitment. So, a review of faculty legal documents could solve this problem.

Infrastructure deals only with the production criteria now but what about the delivery side. Still, most of our faculties are not well equipped with labs for learners so the implementation at this phase depends on the learner's facilities, which can be negative for the family resistant of the idea itself not for the computer availability. Even the survey on the NELC model deals with the learning side, and no item concerning the performance is included in it.

From the forgoing discussion, it can be noticed that the idea of model implementation of e-learning is clearly complex but is not impossible. Changing the role of the instructor suddenly is not correct, but it has to be gradually. He cannot be the only one to bear the whole burden on his shoulder. So, a suggested solution is giving a hand to him by adding two people who can be at the same level of responsibility. The instructor assistant can do many things. He can get the follow-up reports and give detailed idea about tracing the students. This role's needs are not easy as he should have the same technical skills of using the web tools in teaching. He should have a detailed idea about the function of each tool used in the course. The design of the course employs some specific tools directed to achieve the targeted learning objectives. For example, the blog can be a very useful tool for improving writing skills for language learning students. Other tools can be of great benefit for developing thinking skills such as forum and chat rooms. Studies in the field proved the effectiveness of using

each tool in teaching. So, when handling the follow-up of learners on the Moodle and their appropriate performance for each tool, this would spare the instructors' time to concentrate in following their weaknesses and suggesting solutions for them.

Another role for the assistant instructor is to guide the learners to the correct performance. For example, they may respond using simple response. He can show them how to respond to their peers and colleagues. Learners at this stage are not well trained to use computer sets, so how about using the tools, and giving appropriate response to the activities. In addition, he can manage the technical problems in the lab or respond to the learners' inquiries about technical problems. Now the instructor can evaluate the learners' performance by concentrating on the targeted behaviors needed from them.

These things cannot be well done unless the institutional system supported this way of implementation. Still, the institutional documents apply the paper-pen way of achievement evaluation. How the learners learn electronically, apply, and be tested in the traditional way. The idea is what can be the motivation to continue learning using this web-based course unless it is providing more easiness in learning and before that in evaluation and testing. Learners may perform better if they are told what to do in what extent. Thus, a suggested performance rubric for learners is attached to be given and explained carefully to them before starting the course. This rubric guides them for the best performance to each activity and tool in the course. It also gives the instructor the chance to discover the learners' individual differences and abilities in learning. So, institutional regulation should be changed to adapt this teaching way; to redistribute the scoring of the learner to push him to use the e-course.

The solution of the problem does not lie upon the staff and instructional institutions. Still, the cultural negative aspect controls some of our parent's mind. They are afraid of the bad side of web openness. Here comes the role of the enlightenment meetings with parents and social support for the learners as they are faced with two opposing sides. Some of the parents prevent and the instructors pressure them to do so how they can perform on this environment. It becomes a source of disturbance instead of appropriate one for learning. Some of the learners printed the questions and topics to read away from the net screen, which means they did not like reading from computer screens. Others used phone to log in and find problems. So, problems like these may affect them in dealing with the course even if it is interesting and valuable. The recommendation here is to develop applications for the phone delivery. This may facilitate dealing with the course especially they have the phone for 24 hours daily and no problems of DSL connections.

Implementing an e-Learning course will change established educational practices. Some participants will resist changes. The key to overcoming this resistance is to establish a clear goal for institutional e-Learning strategy that delivers strong benefits and rewards and goes parallel with global trends in education. This goal is to be communicated to the organization, and support for the e-Learning initiative should be solicited. Implementation should proceed at a steady but deliberative pace to reduce the risk of failure and to establish early skills gain and development. The e-learning initiative should then proceed more aggressively since e-Learning is one of the few IT investments that has been shown to deliver tangible results for many organizations.

The key challenges and improvement areas the respondents emphasized were the need for an overarching institutional strategy that includes follow-up of all parties, followed by top leadership endorsement and funding because still the infrastructure not complete or available to learners at their own pace. Moreover, this strategy needs to take account of the pedagogical underpinning of e-learning activities. Infrastructure, training, support, and incentives for both instructors and learners are

also considered to be important for successful e-learning. The implementation should be done in the light of the universities bylaw as learners do not care only for subjects evaluated with final scores.

10. Conclusion

As in planning every side should have alternates to guarantee successful results. Sharing parts in e-learning also should have their ones and exert the outmost of their efforts to have the targeted achievements from what they plan to. However, e-learning projects often failed to deliver the results expected, mostly because of poor implementation or neglecting social or cultural aspects during implementation. It is necessary to understand that e-learning is not a technological solution but rather a process with cultural consequences. Successful implementation of e-learning process requires reflection in three main areas, people, processes, and technology as mentioned above.

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Chapter 14

The Implementation of Best Practices of International Projects as the Way of Enhancement of Higher and Business Education in Belarus

Yury Kalesnik and Valentina Vasicheva

Abstract

The development of education around the world is facilitated by the exchange of experience and interaction between education providers from different countries and regions. International programs and projects have become one of the drivers to improve the quality of education, the development of information and communication educational technologies, as well as the dissemination of innovative educational programs at Belarusian universities. Among them, there are the projects of the European Union ERASMUS+ CBHE program, as well as projects and exchange programs of the United States. In this publication, the authors share the experience of implementation of the best practices at universities in the European Education Area (Sweden, Britain, Germany, Italy, Spain, Latvia, Turkey) and the results of the United States experience application, which enabled the improvement of the educational process at the Sukhoi State Technical University of Gomel (Belarus). Also, it is shown how the implementation of the Detroit experience gained at the international internship contributed to the development of ties between Belarusian communities, including formation of inclusive business education and the development of skills for employment and social entrepreneurship of people in Belarus.

Keywords: international experience, lifelong learning, distance learning, e-learning resources, learning design, active learning, inclusive additional education, energy saving, successful employment, social business, network partnership

1. Introduction

New opportunities for the development of education in the Republic of Belarus are provided by international programs and projects [1]. Among them are the Programs of the United States of America, the European Union and others, that give the opportunity to the participating teachers, researchers, higher education institutions' leader to actively implement the gained experience in their countries.

In the context of the global informatization of society, when the world is facing a growing need for inclusive education, the development of interactive educational technologies, the dissemination of information on the experience of implementing the best local, and foreign practices seem to be an urgent task.

Participation in international programs and projects allows the education providers to establish partnership and friendly relations both with foreign colleagues and with colleagues from your own country. The development of such communication leads not only to the acquisition of new knowledge, but also to professional and cultural exchange and mutual development.

By participating in international projects, one can develop the principles and ideas of lifelong learning and implement the main results of the development of the educational process not only in the system of higher education, but also in the system of business education in Belarus.

The involved institutions strive to enhance the principles and ideas of non-formal education, to make it accessible to all people, including socially vulnerable groups.

Thus, in recent years, the principles of Lifelong Learning have become more and more relevant in the Republic of Belarus. There is a growing interest among young people and adults in trainings and courses that are aimed at solving specific problems and developing skills and competencies that are currently in demand. For example, in Belarus, there is a need to support employment processes and development of social business, to provide information support for entrepreneurship, enhancement the pedagogical skills, and competencies of teachers, especially those of technical universities, etc.

Valuable experience has been gained through a long-term partnership with the **Linnaeus University (LNU, Sweden)** that is the grant-holder for multiple international projects. Among others, the best practices and bright examples from the project manager from this university, Valentina Vasicheva, are described by the authors in this chapter.

Presenting his history of participation in projects and implementation of the experience gained, while having more than 20 years of experience at the **Sukhoi State Technical University of Gomel (GSTU, Belarus)** as a lecturer, researcher and manager, **Yury Kalesnik (GSTU) and Valentina Vasicheva (LNU)** offer directions for cooperation with professionals from all over the world.

2. Enhancement of lifelong learning in Belarus through Erasmus+ BELL Project

The international project of the European Union Program ERASMUS+ CBHE "Enhancement of Lifelong Learning in Belarus/BELL" has contributed to the achievement of good results in the development of the Lifelong Learning concept. The project

is aimed at the joint development and implementation of training courses on topics, which are in demand among the population [2].

The development of distance courses was organized on the basis of advanced training institutes of six participating regional universities located in five regions of the Republic of Belarus.

In the course of the project, the staff involved in the project implementation, established new contacts and partnerships with Belarusian regional universities, such as Polotsk State University (PSU, Polotsk, Vitebsk region), Yanka Kupala State University of Grodno (YKSUG, Grodno), Belarusian State Agricultural Academy (BSAA, Gorki, Mogilev region), Brest State Technical University (BrSTU, Brest), Vitebsk State University named after P.M. Masherov (VSU, Vitebsk), as well as the universities in the European educational space: Rezekne Academy of Technologies (RTA, Latvia), Linnaeus University (Sweden); The University of Cádiz (Spain), The Open University (UK). The Belarusian teachers, researchers, and administrators have studied and adopted the experience of partners based on the project objectives.

It is worth noting the high level of integration of the educational process in Rezekne Academy of Technologies (RTA) in Latvia, the BELL project coordinator, with the production processes of the real sector economy of Latvia and the countries of the European Union. Within the framework of academic disciplines, course, and diploma projects, RTA students develop their simple production lines, design and construct industrial robots, study 3D printing and laser material processing technologies, etc. Most courses are conducted in English and this fact increases the competitiveness of academy graduates in the labor market in the global EU space. The competitiveness of RTA educational programs is also facilitated by the widespread use of online learning and blended learning. Much attention is paid to the digitalization of educational programs and the development of digital competencies of teachers [3]. The academy uses MOODLE educational web platform. The teachers of the academy develop educational materials of a new generation for students of both full-time and part-time forms of education. Among the main aspects RTA training materials development, we note the following: the presence of original photographs, plagiarism ban, the emphasis on the most important points of the lecture, the absence of "noise," the use of various presentation design elements (font, color, sound, animation).

In general, the BELL project contributed to the significant development of distance education in Belarus, primarily to the adult education. Thanks to the project, 6 continuing education centers have been created at regional Belarusian universities. In addition to that, network interaction of Belarusian regional universities aimed at solving issues of continuous education is still developing. As a result of teacher's

internships at European universities-members of the BELL project consortium, modern distance learning technologies have been introduced at regional universities of the Republic of Belarus. University subject alliances have developed and implemented distance learning courses for the population on the following actual topics: English language, Information security, Legal literacy, Entrepreneurship and financial literacy, Energy and resource saving in everyday life.

Each Belarusian university was a member of a subject alliance and was responsible for the development of a certain course. Sukhoi State Technical University of Gomel participated in the development of all distance courses of the BELL project, coordinated the work of the subject alliance on the course "Energy and resource saving in everyday life," as well as the development of the course module on entrepreneurship.

These courses were held for the population of Belarus for free. During 2019–2020, more than 2,600 residents of 5 regions of the country registered for the courses, more than 700 successfully completed training and received certificates from the international BELL project. The European partners took an active part in the monitoring to improve the developed courses. The project experience was analyzed, conclusions were drawn and the proposals for future work were worked out [4].

The practice of implementing online courses of the BELL project revealed a number of problems in conducting distance learning process. The 3 main problems that we solve through the development of BELL online courses, are as follows [5]:

Problem # 1: Currently, in Belarus, there is a lack of accessible distance courses for the population, which would be aimed at solving social problems of society, as well as at developing skills and competencies that are in demand for life. The problem of accessibility of educational programs of non-formal additional education was especially evident in the context of the global outbreak of COVID-19;

Problem #2: low activity and motivation of students of distance learning courses, which is expressed in a low percentage of successful completion of such courses (**Figure 1**).

According to the QA research after the 1st piloting of the BELL project distance courses, the percent of students who managed to complete the whole course varies from 20% to 40% of all enrolled participants.

	Brest	Homel	Horki	Hrodna	Navapolatsk	Vitebsk
■ Enrolled	181	466	194	151	170	134
■ Graduated	59	109	57	53	74	41
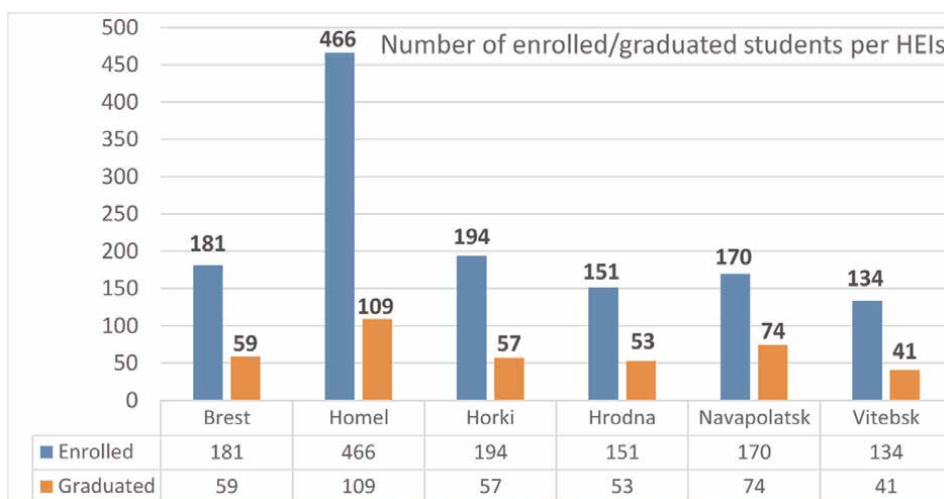
Figure 1.
Number of enrolled/graduated students per HEIs.

Problem #3: establishing continual interest and demand for training courses among the target groups is another problem, along with the inclusion of educational programs in the framework of additional education. This can also be related to the absence of local stakeholders' involvement. Unfortunately, universities, government bodies, businesses, NGOs, and local communities are not that interested in the lifelong learning processes of the population as they expected to be.

The first problem was solved with the introduction of the section **"Social entrepreneurship"** into the "Entrepreneurship and financial literacy" course. This section was developed on the basis of an USAID Community Connections program internship, which made it possible to introduce the students with the notion of modern trends in entrepreneurial activity. With taking as an example, social enterprise PONYRIDE (Detroit, USA, https://www.ponyride.org/) students take a look at the creative business ideas of social entrepreneurship in the USA, and other developed countries.

The information about the experience of participating in the U.S. programs is given further in this chapter (see Part 3: Section 4).

The directions for solving problems would be also considered by using the example of the course **"Energy saving in everyday life."** The course is about **Energy and Resource Saving in Everyday Life as a Direction of Reducing Utility Bills**. The motto of the course is **"If you want to reduce your utility bills, ask us how to do it!"**.

Thus, the course is aimed at solving actual problems (**Figure 2**).

A summary of the course content is presented (**Table 1**).

At Sukhoi State Technical University of Gomel, just as in, virtually, all Belarusian universities, distance courses are also being introduced. Some specialties have been transferred to distance learning.

At the same time, as the practice of the BELL project has shown, special interactive tools and Internet technologies make it possible to improve distance learning and blended learning courses, especially digital content development resources that are actively used in European universities. As for interactive educational Internet resources, they are actively used in modern education, first of all, to involve students in the educational process, contributing to the solution of problem # 2.

So, at The University of Cádiz (Spain), the involved teachers were presented with tools for digitalization and gamification of the educational process. As a result, some of these are being introduced into the practice of working with students of the university, increasing interest in learning.

According to gained experience, the use of the following tools is recommended:

Figure 2.
Essential problems covered by the course "Energy saving in everyday life."

Topics of the course:		
Part 1. Basic concepts and definitions of energy saving. Energy and resource saving actuality. Part 2. The structure of household consumption of energy resources. Part 3. Efficient tendencies of domestic energy and resource saving (for apartments and private households). Part 4. Non-traditional sources of domestic energy supply (for apartments and private houses). Part 5. Managing energy saving in everyday life: how to pay less for resources.		
Total course amount in 90 hours:		
40 hours of lectures (theory)	40 hours of practical classes (practical tasks)	10 hours of workshops
Learning outcomes:		
Skills acquired	Knowledge acquired	Competences acquired
• Utility payment structure evaluation; • Balancing energy consumption; • Development of specific measures to reduce domestic consumption of water, electricity, heat, gas; • Development of recommendations for reducing utility bills.	• What resources we consume, what and how much we pay for; • How to reduce resource consumption without compromising home comfort; • What innovative ideas can be implemented to save the environment and provide yourself with green energy; • How to pay less for resources.	• Why is energy saving relevant for the whole world; • What measures can reduce the payment for the consumption of water, electricity, heat, gas; • What is "green energy" and how to use it in the household; • What are electricity rates and what we pay for; • How does the daily electricity schedule affect your electric bill.

Table 1.
Fragment of the training course passport "Household Energy Saving."

1. **eXe learning**—XHTML and HTML5 editor for e-learning materials. It is a tool for designing, developing and publishing educational and methodological Web materials without the need to learn HTML or complex Web development applications. It allows to create easily navigable web pages including text, images, interactive activities, image galleries or multimedia clips.

2. **H5P**—a simple online constructor for creating interactive content. Provides the ability to create more than 20 different interactivities: exercises, games, quizzes, videos, presentations, interactive posters, collages, etc.

3. **Hot Potatoes**—a program that provides teachers with the opportunity to independently create interactive tasks and tests for control and self-control. With the help of the program, a teacher can create 5 types of exercises and tests in various disciplines.

4. **Socrative**—an online resource that is designed to organize and use the voting system via any gadgets and computers that can work with questionnaires.

5. **Active Presenter**—program for creating demonstration presentations or training videos. It allows the teacher to record all the actions on the computer screen and edit the recorded video.

6. **Kahoot and Menti** are gaming learning platforms used as educational technology. Educational games, the so-called "Kahoots" are quizzes with several answers to choose from. These resources can be accessed through a web browser and have become popular among teachers in many countries.

By the way, using the Active Presenter program, we have developed short video tutorials in Russian language on the use of educational Internet resources.

The experience of the practical use of these tools at the university has shown that interactive and gaming teaching methods are very effective and can be used both with students and listeners of educational programs for additional adult education.

Another tool for improving educational activities is a practical and student-centered approach to the design of educational and program documentation.

European universities widely use approaches aimed at individualization of the learning process, focused primarily on the student. These approaches are already used at the stage of designing educational processes and programs, as well as while the preparation of educational and program and educational and methodological documentation.

Analyzing the practice of implementing a student-centered approach at our university, we can also recommend the approaches used at The Open University (UK).

The Open University is a British educational institution founded in 1969. The goal is to provide an opportunity to get an education for people who want to study in a place and time convenient for them. At the moment, more than 150 thousand students study there. It is the largest university in the UK and one of the largest in the world.

The Open University widely practices distance learning. While designing distance courses, the Open University takes an interesting approach to curriculum development and learning design, deeply analyzes the profile of the student in order to get an idea of his needs [6–8].

When it comes to the design of distance courses, it is advisable to analyze the student's profile in order to get an idea of student's needs (**Figure 3**).

Using the example of the English language course "Travelling" (author—Iryna Zaitsava, teacher at LifeLong Learning Institute at Sukhoi State Technical University of Gomel), let us consider the main questions that a teacher should ask himself while designing a course:

- Who do I see as my potential student?

- How old is this person?

- What professional experience does he have?

- What strengths and weaknesses does he have?

- What motivation contributes to his desire to learn?

- What difficulties can he experience while learning?

- What learning style does my student like and what should be avoided?

  Also, it is important to make the student understand effective results of learning:

- What does he have to do to successfully complete the course?

- What will he be able to do at the end of the course?

Name

Adventurer

Learning design

The Open University

Age	First language
18+	Russian/Belorussian

Practical needs

Needs more time than others to work through the module material

Study motivations

Expects useful tips on travelling, foreign cultures and specific language.

Living situation

Has the possibility to manage time and to make long-term plans.

Educational experiences

Further or higher education. Creative and analytical mind.

Tuition likes

Enjoys activities which are directly relevant to the work context and help to solve real-world problems

Study skill strengths

Is good at independent study and enjoys working without close supervision or guidance

Tuition dislikes

Dislikes engaging in long activities and lengthy chunks of learning

Study skill weaknesses

Is easily distracted by social media and finds it difficult to concentrate for longer periods of time

Figure 3.
Student profile for English language course "Travelling."

Asking yourself such questions while designing a course, makes it easier for the teacher to decide on the choice of the subject of the material and its level, helps to understand the pace of work and the intensity of the program, the need to include interactive techniques in the course.

Let us take as an example a potential student of the Traveling course. This person is interested in travelling and getting to know the culture of different countries. He is energetic, enthusiastic, likes to get information quickly and is often distracted. In order to attract the attention of such students to the course and not let them get bored, it was decided to diversify the tasks with interactive ones (**Figure 4**).

While developing the module for evaluating learning outcomes, in the course on energy saving, the students were asked not only to complete practical tasks and answer test questions, but also to present the results of the implementation of specific activities that led to a decrease in utility bills.

Along with others, we admit good experience in designing training courses at **Linnaeus University LNU** (Sweden). Currently, more than 35,000 students' study at the university, where distance learning technologies are well developed, active learning methods are widely used.

In order to visualize the presentation of educational materials and explain to students the objectives of learning at LNU, we were shown how the methods of studying and subsequently solving complex or vague problems are applied, by presenting them in detail (**Rich Pictures**), as well as a detailed description of the structure of the system (**System Maps**), which consists of definition, association and ratio of components.

The use of the Rich Pictures methodology at GSTU university made it possible to present the students with an interactive, simple and understandable structure of the curriculum of the distance course "Energy saving in everyday life" By clicking on a specific picture icon, the student goes to the corresponding section of the course (**Figure 5**). Also, the course contains e-quizzes in Kahoot (**Figure 6**).

For example, if students are interested in the topic of saving water, then by clicking on the relevant picture on **Figure 5**, they get to the page with necessary educational materials, including theoretical information, practical recommendations, materials for monitoring and assessing knowledge, as well as a short video lesson on this topic of the distance course, which shows the effectiveness and gives recommendations for the use of aerators (**Figure 7**).

The use of the tools shown above in the Household Energy Saving course increased the rate of students who successfully completed the course to 56.9% (**Table 2**).

Speaking about the development of inclusive additional education in Belarus, ensuring sustainable interest and demand for distance learning courses for the population, it is advisable to involve a wide range of stakeholders in these processes.

For the development of distance learning at universities, the following post-project sustainability ideas were suggested by partners from VSU [2] (**Figure 8**).

Also, we are interested in establishing new contacts and networking with professionals from all over the world.

Among the significant results of the BELL project, we should also pay attention to the fact that for the first time in Belarus it was possible to ensure the functioning of

Figure 4.
Kahoot game on Belarus symbols and Mentimeter Questionnaire on travelling.
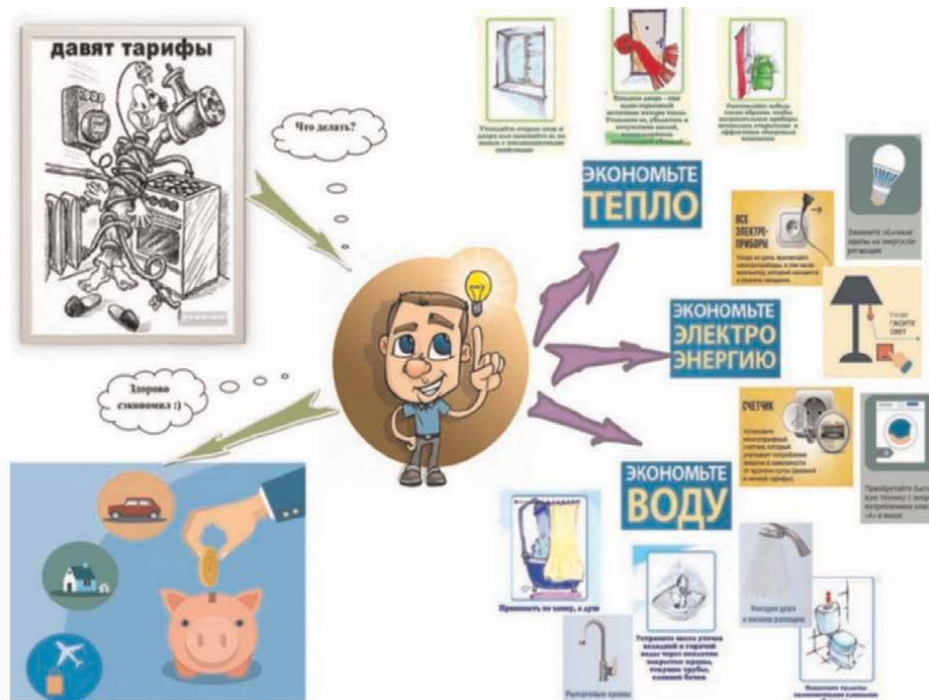
Figure 5.
Interactive course-curriculum "Energy saving in everyday life."

the interuniversity network of continuing education (International Learning Network) based on distance learning technologies and Bologna tools for the development of the regional labor market.

3. University teaching and learning enhancement through Erasmus+ UniTeLE Project

The experience of European universities shows that students need to be actively involved in the learning process. Therefore, speaking about approaches to conducting training sessions, one should pay attention, first of all, to interactive educational technologies and widely used active teaching methods.

Thus, the most important areas for improving the quality of education in Belarusian universities are as follows: the development of a system of advanced training for teaching staff, assessment of the quality of teaching and learning. In addition to that, it is advisable to train teachers in modern interactive methods, educational technologies, etc.

The European Union Program ERASMUS+ project "University Teaching and Learning Enhancement/UniTeLE" is dedicated to solving this problem and the team of our university also actively participated in it

Figure 6.
E-Quiz of the course.

The members of the UniTeLE consortium are Linnaeus University (project coordinator, Sweden), University of Genoa (Italy), Heidelberg University of Education (Germany), Nevsehir Haci Bektas Veli University (Turkey) and the following Belarussian universities: Belarussian State University (BSU, Minsk), Polotsk State University (PSU, Polotsk, Vitebsk region), Sukhoi State Technical University of Gomel

Figure 7.
Video lesson on aerators usage of the course "Energy saving in everyday life."

BY region	Total number enrolled	Successfully completed the course	
		No. of students	Share of students
Brest	29	18	62.1%
Vitebsk	23	19	82.6%
Gomel	43	22	51.2%
Horki	24	16	66.7%
Hrodna	22	11	50.0%
Navapolatsk	40	17	42.5%
Total	**181**	**103**	**56.9%**

Table 2.
Progress of students of the course "Household Energy Saving."
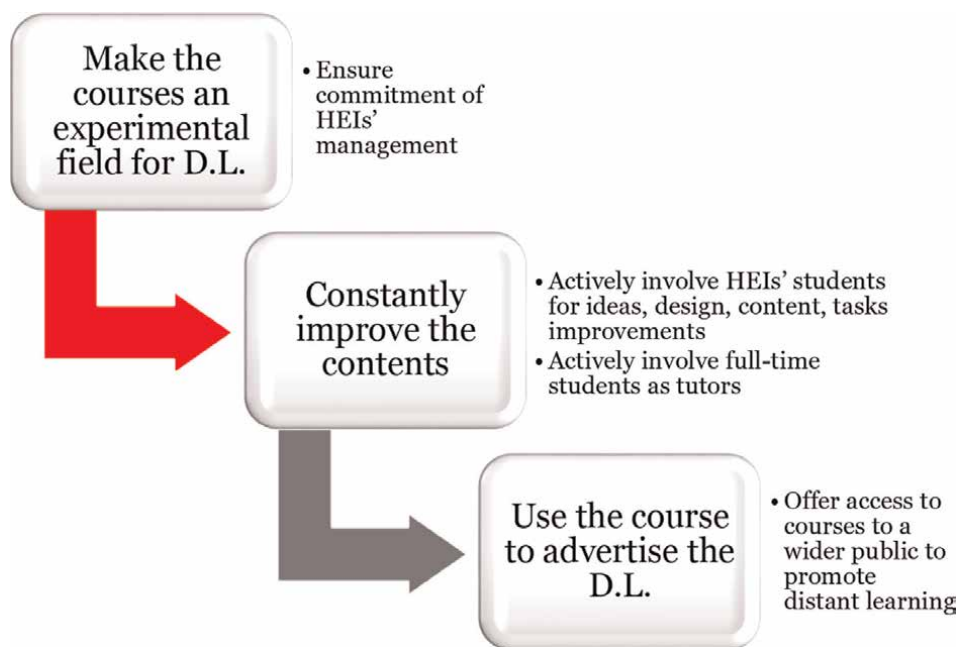
Figure 8.
Post-project sustainability ideas for distance learning courses.

(GSTU, Gomel), Yanka Kupala State University of Grodno (YKSUG, Grodno), Belarusian State Agricultural Academy (BSAA, Gorki, Mogilev region), Brest State Technical University (BrSTU, Brest).

The wider objective of this project is development of an internal Quality Assurance (QA) system at Belarusian (BY) partner universities for their academic development with in-service teacher-training program for structural improvement of the employment and pedagogical performance of teaching staff and students' participation in quality assurance at BY Universities.

Participation in this project made it possible to study active teaching methods, the system of academic development of teachers and approaches to assessing the quality of teaching and learning at partner universities.

For example, at Heidelberg University of Education (Germany), the staff from Belarussian universities studied the approaches to the educational process organization. They are implemented in a way that guides students towards a learning model in which they:

- know the direction of their career development;

- independently regulate the model of professional competencies;

- use the technologies of personal development, ensuring efficiency and self-motivation.

Heidelberg University of Education teachers apply active learning methods, create video lessons, use ergonomic and transformable furniture for the learning process, and develop social and personal competencies of both teachers and students.

In addition, various courses and subject at the university can be enhanced by using the modern VR technologies in education (**Figure 9**).

Based on the experience of Linnaeus University, Heidelberg University of Education and University of Genoa, Belarussian universities have proposed a student-centered approach, which that is implemented at Lifelong Learning Institute at Sukhoi State Technical University of Gomel (**Figure 10**).

Figure 9.
Studying the experience of using VR-technologies in the educational process at the Heidelberg Pedagogical University (Germany) and at the Nevsehir Haci Bektas Veli University (Turkey).

SUGGESTIONS TO IMPROVE THE QUALITY OF EDUCATION:

Creation of innovative educational centers for the preparation and development of university teachers	The use of interactive educational technologies, methods of active learning

STUDENT

Knows technology personal development	Knows the directions of career development
He owns technologies for ensuring performance and self-motivation	Regulates the model of professional competencies

Providing of life-long learning education

Figure 10.
Suggestions to improve the quality of education.

In developing the university's QA strategy, the following principles were considered:

- the quality of the education depends directly upon the quality of the educators. It is no longer acceptable for educators to possess only skills and knowledge necessary to teach [9];

- it is important to develop and implement QA strategies built into all university services [10];

- involvement of students in the development and evaluation of courses will give teachers an understanding of the relevant issues of student learning and knowledge management [11].

During the UniTeLE project, the experience of the University of Genoa (Italy) in applying active learning methods and assessing the quality of education, as well as the development of lifelong learning was studied, disseminated and implemented by the beneficiary universities [12, 13].

By the same way, the analysis of the quality of education should be carried out in two directions [14]:

1. analysis of the quality of education provided;

2. analysis of the quality of education received.

Due to the knowledge gained during the visit to Italy and Germany, the following active learning methods have become effectively applied at the Lifelong Learning Institute at Sukhoi State Technical University of Gomel.

- **Buzz groups**—is a method of collaborative learning. It involves the formation of small discussion groups in order to work on a specific task (generation of ideas, problem solving, etc.).

One problem is preliminarily discussed in small groups, and then the general discussion of the problem begins (**Figure 11**).

This technique makes it possible to improve the quality of the result, and, if desired, to discuss the problem in more detail from different angles. To get more detailed review, the lecturer can give an appropriate individual task to each small group at the preliminary stage). Students learn to prepare solutions to problems in a short time using effective team interaction.

- **Critical debate**—the method of critical debate involves dividing students into two teams for giving a particular solution to a problem. One team prepares a speech and arguments in support of the decision (the "For" group). The other team prepares to challenge the solution proposed in the task (group "Against"). After the preliminary stage of group discussion, general discussion takes place within a predetermined format (speech, questions and answers to them, discussion) (**Figure 12**).

By this experience, students learn to consider different points of view, to choose arguments, to convince others that they are right. Along with improving the quality of the acquired knowledge, students develop important communicative competencies: the ability to persuade, speak in public and lead a discussion.

- **Sequence chains**. This method is used if it is requisite to study the essence, patterns, sequences in relatively complex systems. To give such a lesson, it is necessary to prepare the material in advance and determine the number of groups (equal to the number of prepared logical chains). The material can be handed out on a sheet of paper separately for each predetermined group. There is an alternative solution—to give each student a card with a part of the problem so that

Figure 11.
Buzz groups discussion.

Figure 12.
"Critical debate" in the educational process of the LLL Institute at GSTU.

they themselves find their groups in the process of mutual active communication. After that, each group assembles the problem from its constituent parts, and then looks for ways of solving it, putting the elements of the structure in order and creating chains of sequences. The group fixes the chains graphically. Thus, in addition to basic knowledge, students develop the ability of logical thinking, teamwork and also use various methods of memorizing material.

• **Send-A-Problem**. While preparing for the lesson, the task for students is divided into problems. At the beginning of the lesson, students are divided into teams (preferably 2–4 people each).

Each team is given one of the problems of the task. The duration of the round for discussion and proposal of ideas is set. During the discussion, any ideas can be expressed and recorded by each team member. At the end of the time of the next round, the team passes on its proposals for solving the problem to the neighboring group, which in the next round also contributes to the solution and then passes the problem on. Thus, the solution to each of the problems during the lesson is discussed and improved by each student group. In the last round, each team prepares one problem for presentation, summarizing all the best ideas developed by the groups during the session. This method forms students' readiness for joint problem solving. The process encourages creativity in problem solving and emphasizes the value of different points of view. The Send-A-Problem method can be applied both for classical learning, for example, in practical classes, and for distance, online learning using online forums.

In the process of active learning, a number of rules should be followed: it is necessary to ensure the active participation of everyone. So, students should listen carefully, study different points of view and put away mobile phones, computers, tablets.

Particularization of Intervention Areas research was applied to achieve the aim of the UniTeLE project [15]. To carry out this kind of research, a consortium of Belarusian universities used:

- SWOT analysis of QA at each Belarusian partner-university;

- Definition of areas of concern & project intervention.

This approach was chosen at an initial meeting at LNU (Sweden).

Questionnaire survey on the quality of higher education processes and its development priorities was taken as a basis of the survey, along with the interviewing the expert community and stakeholders.

The major principle of the UniTeLE project is a student-centered higher education system. It means, that student's needs and abilities is the core of the higher institution management. The authors of the article have suggested a research process which includes the following 7 steps:

1. Development of a unified approach to research;

2. Creation of working Groups in each of the 6 Belarusian universities of the project consortium: 10+ managers, 15+ lecturers;

3. Carrying out at each university sociological research by questioning managers, lecturers, students, alumni (at least 500 respondents);

4. Sociological analysis of the survey results;

5. Conducting focus groups at universities in areas of improving the quality of Belarusian higher education. Participants: managers, lecturers, students;

6. Preparation of summary report: the matrix of the SWOT-analysis of quality of higher education;

7. Defining Interventions and Improvements: SWOT Offerings Matrix.

The suggested steps lead to:

- creation of expert groups, which included more than 60 managers and more than 90 lecturers from six different Belarusian universities;

- extensive sociological survey with more than 350 participants, who were mostly students and graduates of Belarusian universities (both Minsk and regional centers);

- the appearance of representative image balanced by gender, age, social and professional status.

Questionnaire was used as the basic methodological tool of sociological research, with 27 common and 4 supplementary questions in it.

Questionnaire options made it possible to take a look at the wide range of opinions on the problems of higher education as well as on the factors which regulate its quality.

The following areas were covered:

- professional, social and personal skills, such as experience, reputation, qualifications, lifelong learning, motivation;

- university material and technical base value (classrooms, equipment, laboratories, spots for physical, cultural and intellectual development);

- educational technologies, methodological and information support, training software and apps;

- the role of stakeholders in university development;

- students' and teachers' social roles;

- organization of students' self-education work;

- influence of demographic, economic, political factors aspects;

- connection between the international university cooperation and higher education quality.

There also were questions, which were used to identify the most important characteristics of a highly competitive university on the educational market.
The following recommendations were given as a conclusion:

- more attention should be paid to the development of Soft Skills competencies among teaching staff (on interaction with students, etc.);

- active learning methods should be widely introduced;

- more attention should be paid to the development of Soft Skills competencies among students (job search skills, entrepreneurship, self-employment, etc.);

- stakeholders (along with the students) should be involved in the process of education quality assurance;

- assessment of university teaching staff should have a systematic approach;

- HRM should be applied in recruitment and academic development of university teachers.

Realization of such steps as development of methodological and information support of educational process, employment of highly qualified teachers who are able to use modern educational technologies and have necessary social and personal competencies is supposed to lead to the permanent motivation of students to perfect their key skills following the principles of Lifelong Learning. The matrix of SWOT-proposals for improving the system of higher education in Belarus is presented in **Table 3**.

Necessary activities to use strengths to increase opportunities	Activities that use strengths to avoid threats
1. Foreign specialists' invitation in order to give master classes and to train lecturers of modern educational technologies. 2. International internships and training of lecturers to gain the competencies, which are in demand in the region. 3. Invitation of leading foreign universities lecturers. 4. Giving students the opportunity to practice and to train abroad to gain key competencies, which are in demand in the region. 5. Training of foreign students in English language. Information and methodological support development. 6. Involvement of employers and basic enterprises specialists in the educational process. Cooperation for determining the principles of training, develop of learning design, etc. 7. Organization of comprehensive assessment system of the educational process quality and effectiveness, of the lecturers and structural university departments work. 8. Creation of university departments branches at the enterprises. 9. Creation and improvement of electronic interactive training courses for students, applicants, adult student. 10. Distance learning development.	1. Universities transformation into regional innovation and educational centers using various sources for in-depth financing of scientific work. 2. The development of alternative employment for teaching staff to improve educational technologies and teachers' income level. These might include continuing education courses for employees of basic enterprises using modern educational technologies, courses for adult students, for applicants, etc. 3. Development of non-material motivation system for lecturers, e.g., the opportunities to participate in international projects. 4. The use of basic enterprises equipment during practice and laboratory studies and for student research laboratories organization. 5. Development of unique educational and vocational guidance projects for applicants to involve them in higher education. 6. Making contracts with basic enterprises for upgrading and retraining of their employees on the universities. 7. Enhancement of applied educational projects related to the development of lifelong education and learning of foreign languages.
Necessary activities to overcome weaknesses and to use the opportunities provided	Activities that minimize weaknesses to avoid threats
1. Interactive teaching technologies, interactive teaching forms and methods development. 2. Adult education development, new educational services development, including the field of upgrading and retraining studies. 3. Modernization of curricula, introduction of modern educational technologies. 4. Intensification of project activities on application preparations for grants and various competitions. Especially the ones that related to financing the development of education and experience exchange with partners from foreign countries. 5. International contacts development.	1. Involving all who are interested, in the process of evaluating and improving the educational process. 2. Systematic training and development of social and personal skills and competencies, both for lecturers and students. 3. Development and support of a corporate culture of quality and innovation. 4. Search for sponsors and funding to design innovative infrastructure (technology park that allows to commercialize student projects, vocational guidance and testing centers for schoolchildren, etc.).

Table 3.
SWOT-proposal matrix for the UniTeLE project.

One more important point is to keep international cooperation and networking among universities to improve the quality and competitiveness of Belarusian education.

Additionally, some of the interesting approaches to the organization of the educational process could be found at Nevsehir Haci Bektas Veli University (Turkey), where the Belarussian partners attended the workshops and trainings within the UniTeLE project.

The University of Haji Bektash-i Veli was founded in 2007. It currently has about 20,000 students, about 700 teachers and 500 employees.

At this university a lot of attention is paid to the involvement of students into the learning process and to the development of their skills to study independently. Various methods are used to increase interest in learning and make students interested in independent work:

- interaction between the teacher and the student;

- interaction of students among themselves (mutual learning);

- use of visualization tools, audio and video materials;

- brain-breaks video applications (http://hopsports.com/videos/international), etc.

There is also a creative approach to the balance between learning and relaxation during special lessons conducted in the form of dancing and singing, and short active breaks, so called **BRAİN-BREAKS,** which adds to the activizzation of learning [16].

The approaches of **Nevsehir Haci Bektas Veli University** to the organization of the system of advanced training of teachers have already been applied at the Sukhoi State Technical University of Gomel when creating the Center for Advanced Training of Teachers (**Figure 13**):

The experience of Nevsehir Haci Bektas Veli University in assessing knowledge during distance learning process seems to be good for application in Belarus. Students not only complete assignments on the learning portal, but they also record video responses to prevent cheating.

Participation in the UniTeLE project made it possible to establish new contacts and friendly relations with universities in the European educational space (Sweden, Turkey, Germany, Italy). Moreover, due to the results of internships for teachers at the universities of the consortium, the beneficiary higher education institutions were able

Figure 13.
System of advanced training for teachers.

to introduce modern educational technologies at their courses and educational programs, including conducting training using network technology (**Figure 14**).

For example, to develop a curriculum "Learning Design" and improve the skills of our university teachers (**Table 4**).

As a result, six Belarussian universities established Centers for Academic Development of Teachers (CADTs) that promotes and disseminates the gained experience and know-how.

One of the key modules of the course **"Learning Design"** is the module **"Innovative teaching methods and technologies."** This module reveals of active learning methods, and is especially devoted to the development of the most relevant digital competencies of academic staff [17, 18]. The fact that the learning design of this module was developed as a syllabus and as a guideline for a student and for a teacher makes this approach highly appreciated by both teachers and students [19, 20].

Purchased within the project, the technical equipment of the Centers for Academic Development allows for to enhance the trainings using information, communication and network educational technologies, with the possibility of online participation of specialists from other universities and countries (**Figure 15**).

Thus, the described pilot experience in conducting professional development courses for teachers of technical universities has shown good results in the use of network educational technologies and online participation of Belarusian universities (GSTU, Gomel; PSU, Polotsk; YKSUG, Grodno; BSAA, Gorki; BrSTU, Brest), European universities (LNU, Sweden; UniGe, Italy; PH Heidelberg, Germany). We also organized an interesting seminar **"Psychology of Creativity and Innovation for Students of Economics and Technology"** for the teachers with online participation of colleagues from Colorado Mesa University (USA).
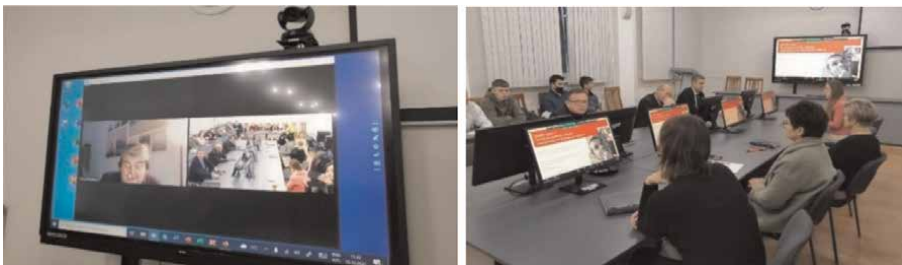
Figure 14.
Improve the qualifications of GSTU teachers.

Module No. 1	Culture of quality
Module No. 2	Innovative teaching methods and technologies
Module No. 3	Team building and mutual learning
Module No. 4	Psychology of interactive learning
Module No. 5	Leadership and social responsibility
Module No.6	Learning Design

Table 4.
The first BY University course "Learning Design" to improve the skills of university teachers.

Figure 15.
Project of e-learning classroom—Academic Development Center at Sukhoi State Technical University of Gomel.

Speaking about the implementation of the European experience in GSTU, we would like to emphasize the following positive aspects. In the classroom, teachers use interactive platforms to test knowledge and present new information in a form game. Active learning methods, interactive platforms where students can answer questions, take part in quizzes, create discussions and polls using their mobile phones, have received good feedback from our students and teachers.

On the basis of the Center for Academic Development of Teachers (CADT), Sukhoi State Technical University of Gomel is currently performing advanced training programs, internships, training courses for faculty staff, as well as for students. Moreover, it creates more accessible opportunities to use the information and communication educational technologies and networking with partners (**Figure 16**).

The teachers are able to use electronic educational Internet-resources, develop distance and blended learning courses, apply elements of gamification and active learning methods.

Also, good results are shown by educational activities, which are aimed at developing of social and personal competencies.

Today, students of Lifelong Learning Institute at Sukhoi State Technical University of Gomel, within the framework of academic disciplines, master European time management techniques, anti-stress practices and trainings, communication trainings (the ability to establish contacts and make connections, to be persuasive and speak in public), develop communication and mediation skills in conflicts, performance management, self-motivation, business planning, job search, etc.

Thus, the best practices of European universities have been applied in the Republic of Belarus and are contributing, in particular, to:

Figure 16.
Report on the TV channel about the BY CADTs.

- active use of electronic educational resources, the introduction of distance courses and blended learning courses;

- development of a student-centered approach in the design of training courses;

- improvement the independent work of students, self-learning and the interaction of students with each other;

- dissemination of active learning methods and gamification for effective assimilation of educational material;

- development of partnerships between universities, networking of universities.

4. Private sector development through career advising

Significant results in the development of entrepreneurship and solving the problems of employment of Belarusians were achieved through the application of the experience of the internship under the Community Connections program, sponsored by the U.S. Agency for International Development.

The Community Connections program is a 3-week internship in the USA designed according to the professional interests of the participants.

Internships include visits to similar professional organizations in the United States to exchange experiences, participation in conferences on the topic of the visit, communication with experts, as well as participation in cultural events and volunteer activities.

The selection is carried out on a competitive basis based on the results of questionnaires and interviews. Proficiency in English is not required to participate in the program.

The experience of this program, studied in 2015 on the topic "**Private Sector Development through Career Advising**" (host organization **Global Ties Detroit**), was widely implemented in GSTU and the Gomel region (Belarus).

This experience may be interesting for specialists working with socially vulnerable groups from other countries.

The main part of the internship took place in Detroit, where several activities focused on problems with unemployment and employment. As part of the internship, the participants got acquainted with the experience of about 30 different organizations in Detroit (career development and job assistance centers, entrepreneurship development centers, colleges, universities, public organizations, **Figure 17**).

Among others, the hosts presented their experiences on government programs and American experience on how to help people find employment, including socially unprotected people, the illiterate, the homeless, and how they can create their own business.

The participants also got acquainted with the experience of Detroit Universities (Wayne State University, https://wayne.edu; Oakland University, https://www.oakland.edu) and Colleges (Wayne County Community College District, https://www.wcccd.edu; Macomb Community College, https://www.macomb.edu) in the work of student career development centers and leadership programs.

Entrepreneurship and private business are of great importance in solving the problems of employment in the United States. Considerable efforts are devoted to promoting the ways of how entrepreneurs can solve the social problems of society.

Figure 17.
Some visited organizations in Detroit.

Therefore, the colleagues from both countries discussed the best practices of training people, programs for the development of entrepreneurial skills, programs for business education, and entrepreneurship support.

When developing projects implemented in Belarus, similarities between the city of Detroit (USA) and the city of Gomel (Belarus) were taken into account, including a similar level of industrial development (machine building, for example), which has led Detroit to unemployment problems, the need for vocational training, as well as economic recession in the past. Due to this experience, as well as advice from American colleagues and interaction with other Community Connections alumni, it became possible to implement a number of ideas and projects in Gomel (Belarus), among which are the projects "**Successful Employment,**" **Inclusive Business School "Social Entrepreneur," Start-Up School "ИПК Business School**."

The projects implemented in Gomel are aimed, first of all, at promoting the employment of students and socially vulnerable groups, the development of business education and social entrepreneurship. For example, the best practices from Detroit were implemented at GSTU through the educational innovative projects "School of social entrepreneurship" (since 2016) and "Successful Employment" (since 2017).

The educational project **"Successful Employment"** was implemented in 2017-2018 with the support of U.S. Embassy Small Grants Program (**Figure 18**, http://www.mystart.by).

The project allowed GSTU to organize events for successful employment, career growth, increasing employment and entrepreneurial activity of citizens of the Gomel region who have lost their jobs or are at risk of losing them, as well as to increase the personal social responsibility of citizens to society and their families.

A key feature of the "Successful Employment" project is the emphasis on psychological support for participants (experience of JVS Human Services, https://jvshumanservices.org) and training in the programs "How to find a job" and "How to create your own business" (experience of DESC, https://descmiworks.org; TechTown Detroit, https://techtowndetroit.org; International Strategic Management (ISM) https://myisminc.com, and others).

Figure 18.
Logo and film about the project "Successful Employment."

Moreover, using the information resources of the ISM enhances the up-to-date information on the development of entrepreneurship such as, for example, the tactics and strategies that lead to strengthened engagement of the potential customers in solid, beneficial relationships [21].

Over 50 interactive seminars were held during the project "Successful Employment," trainings and masterclasses were held, and more than 150 people took part in the project, including 52 participants of final part on creating own business. At least 25 project participants were successfully employed and have already created their own businesses and got project mentors support.

For the 1st time in the Gomel region, an open IT-HACKATON was held (PONYRIDE experience, https://www.ponyride.org/)—a competition on developing innovative job search resources, and for the 1st time in Gomel region, a competition of housewives and mothers on maternity leave business ideas was held (experience of Build Institute, https://www.buildinstitute.org/).

At the final stage of the project, a large-scale conference was organized, where the participants presented their business projects to the mentors (**Figure 19**).

The prize-winners received financial support from project funds. Systematic activity on the support of employment and business initiatives was organized on the basis of LLL Institute at Sukhoi State Technical University.

Relevant job placements and career development of project participants confirm that U.S. experience can be successfully used in Belarus. And this experience was scaled up thanks to the "**Inclusive Business School of Social Entrepreneur**" project, also based on the experience of Detroit.

Successful entrepreneurs, experts from Belarus, Sweden, Italy, and alumni of U.S. exchange programs have united to implement the School of Social Entrepreneurship project.

Aiming at the development and promotion of the social entrepreneurship in Belarus, the university staff have created the first social business school in the Gomel

Figure 19.
*The final conference by project **"Successful Employment.**"*

Figure 20.
International networking: experience of the TEMPUS Ecotesy Project.

Module No.1	Social entrepreneurship: history, criteria and foundations for creation
Module No.2	Legal aspects of social entrepreneurship. Legislative privileges and preferences
Module No.3	Social Business Ideas: Development and Crash Testing

Table 5.
Fragment of the first of BY university course curriculum on the discipline "social entrepreneurship."

region (since 2016), that is implemented in partnership with local public organizations and business communities.

The school is based on an innovative business course on social entrepreneurship, during which participants develop their social business projects and create their own business with the support of experienced mentors.

It should be noted that within the framework of the pilot initiative "School of Social Entrepreneurship," Valentina Vasicheva for the first time presented the principles and ideas of network interaction between scientific communities from Sweden, Belarus, Ukraine, Estonia, Spain, UK (**Figure 20**), which were worked out in 2014-2017 in the course of the international project **"Interregional Network for Innovative Development of Ecosystems Technosphere Based on Micro- and Nanoobject Technologies"** of the European Union TEMPUS Program.

Thus, from 2016 to 2022, more than 150 people were trained at the school of social entrepreneurship, for the first time in Belarus, the LLL Institute at GSTU created a training course **"Social Entrepreneurship"** for students (since 2019) and new social entrepreneurs appeared in Gomel (Belarus).

Along with training in economics, marketing and management, as a part of the discipline **"Social Entrepreneurship"**, students are taught to formulate a business idea for social entrepreneurship, develop and crash-test a business plan for its implementation (**Table 5**).

In general, the project "Successful Employment" and the "School of Social Entrepreneurship" project made it possible to obtain very interesting results, about which more than 100 reports were published in the Belarusian media and a large-scale publication should be written.

Thus, new communities of graduates of the LLL Institute of GSTU programs and social entrepreneurs are being formed, the development of which is the task of our further research and enhancement. And the authors will be grateful to colleagues for the exchange of experience in working with such communities.

5. Conclusions

Effective training courses and educational projects to enhancement of community's connections and build Hard Skills and especially Soft Skills have been

created based on the experience of leading European universities and U.S. exchange programs. Now they are used as a part of various training courses for enterprise specialists, as well as in various educational projects of the university for students and schoolchildren (university Saturdays), for the population (ИПК-Business School, start-up weeks), for unemployed citizens (in cooperation with the Employment Center, public organizations, business communities), etc.

It should be noted that a distinctive feature of the start-up school "IPK-Business School" is the involvement as speakers not only of university teachers, but also, mainly, business coaches from among practicing entrepreneurs (**Figure 21**). And we will be glad to have partners participate in our start-up events.

As a result of the above mentioned experiences, it is possible to conclude that the most promising direction for the further development of education is the networking of universities, government, business, public organizations, and other stakeholders. By creating technical capabilities at universities, including those based on modern information and communication technologies, it becomes possible to build real cooperation between providers of educational services, to launch joint development and implementation of scientific and educational projects and programs.

Figure 21.
Logo of the Start-up School of the LLL Institute at GSTU.
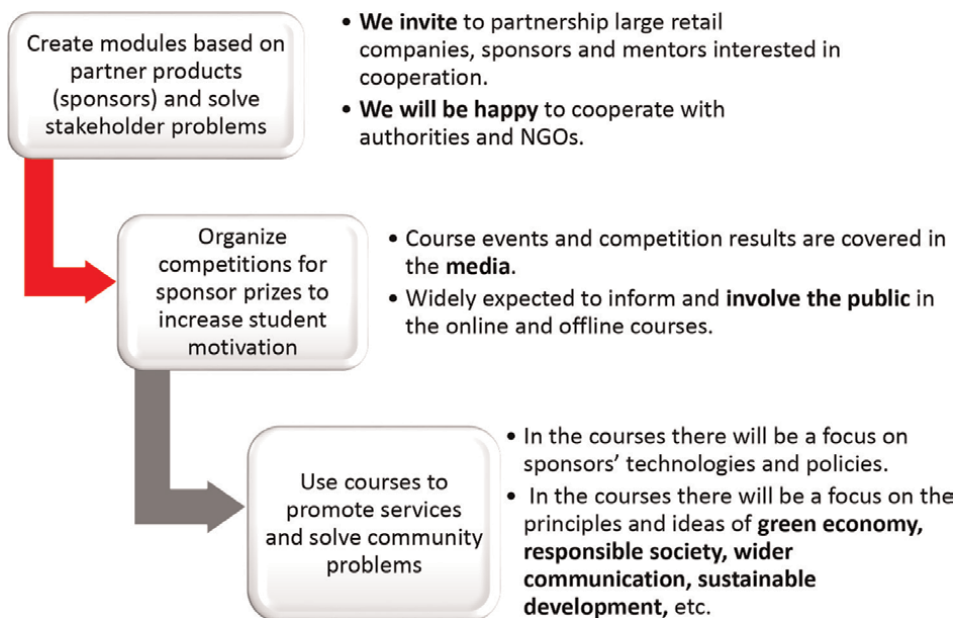
Figure 22.
Areas for partnership in joint development and implementation of educational projects, courses and programs.

For example, within the framework of cooperation, joint development and implementation of various distance courses, blended learning courses for students and for the public, we offer the following areas for global partnership with colleagues (**Figure 22**).

Based on the experience in creating subject alliances and networking with other universities to develop and implement educational courses, projects and programs for the population, as well as training for teachers of beneficiary universities, it is essential to emphasize the importance of building the network with professionals from all over the world.

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Chapter 15

Students' Interaction in Breakout Rooms

M.A. Rahaf Almazmome

Abstract

Interaction between students is widely regarded as being beneficial and even influential towards learning and creating opportunities for learning. Many previous studies have highlighted the importance of student-student interaction in the traditional face-to-face classroom. However, since the onset of COVID-19, there has been a shift to synchronous online learning (SOL): a context in which little is yet known about the role of interaction. Student-student interaction has become more difficult to promote, given the constraints of working through VLEs such as Zoom. The aim of this research is to investigate whether students and teachers believe that students' interaction during SOL is beneficial or not, the challenges faced by teachers in creating space for students' interaction, why these challenges arise and how it could be solved by exploring the appropriate use of affordance and how can teachers make use of existing affordances to create space for effective learners' interaction. This study uses a qualitative methodology, adopting a focus group with 20 university students and teachers as well as an individual interview with the teachers and students to gain rich and in-depth data. The findings show that teachers and students have experienced many challenges during the emergency remote learning. The findings suggest that teachers require training to develop their teacher technological competence and their e-CIC to encourage effective learners' interaction in SOL.

Keywords: synchronous online learning (SOL), classroom interactional competence (CIC), zoom, virtual learning environment (VLE), present in person (PiP) Covid-19

1. Introduction

The current study is guided by Vygotsky's sociocultural theory [1], which explains that learning occurs during social interaction. The zone proximal development (ZPD) Vygotsky's work notes the difference in what learners achieve alone and what they achieve cooperatively with other learners, which emphasise the importance of peer interaction as it develops learners' skills and lead to greater performance than learners working alone. Gass [2] emphasised the importance of social interaction and noted that as it is a tool for providing input for language learners.

In addition, social interaction has been said to develop learners learning by developing their reflective thinking, which may lead to higher levels of cognitive, social, moral development and critical thinking. These are all skills that are important for university level students. The most important skill for university student is critical

thinking as it enables them to question and reflect their knowledge, which promotes higher order thinking skills. The Quality Assurance Agency for Higher Education in the UK states that students should be able to make critical judgements and evaluations [3]. for students to achieve critical thinking, it has been highlighted from previous studies that this can be successfully achieved by promoting more student-student interaction [4], which as noted by Moore [5] learners' interaction is a valuable resource for learning.

Many researchers have looked at the connection between interaction and learning [6–9]. Although there have been many studies on interaction and learning, the research on interaction in SOL remains limited. Considering the recent global pandemic learning has shifted to online learning, for this reason it is important to explore the online interaction.

As this study aims to examine how teachers can create space for learners' interaction in breakout rooms, it is very important to discuss the notion of classroom interactional competence (CIC). The main idea behind CIC is that interaction is closely connected with learning, so teachers gaining interactional knowledge will provide better learning opportunities for their learners [9]. As mentioned previously according to Vygotsky's theory of learning, social interaction supports learning. One main features of CIC that will be discussed here is that CIC "creates space for learning" [10]. One of the ways CIC accomplishes this is by allowing more planning time, which could be achieved online by giving more effective time for learner-learner interaction in breakout rooms [11]. This will be looked at in more detail later in the literature review.

This research sought to investigate the challenges faced by teachers in creating space for students' interaction. Why these challenges arise and how could teachers overcome these issues by exploring the appropriate use of affordance of Zoom. As well as how teachers can make use of existing affordances of Zoom to create space for effective learners' interaction. This study uses a qualitative methodology, adopting a focus group with 12 university Applied linguistics and TESOL international students and teachers. Followed by an individual teacher and student interview to gain rich and in-depth data. As well as an observation video recording of a breakout room on ZOOM.

2. Overview of the study

This study is divided into six chapters. Chapter one briefly considers learning in sociocultural theory, explores the aims and objectives of the study, and provides an overview of the study. Chapter two critically reviews the relevant literature on learners' interaction, synchronous online learning and learners' interaction in breakout rooms on the Zoom platform. Chapter three discuss the methodology taken for this research. Chapter four presents the findings of this research. Chapter five discusses the findings in more detail and in relation too previous research. Chapter 6 will give a conclusion of this research.

3. Motivation for the study

This study has its roots in my personal experience, I have been studying and teaching during the global pandemic using the Zoom online conference to deliver and attend lessons; therefore, I understand what learners and teachers feel and the challenges that may face during SOL. Doing this research fulfils my desire to increase

my understanding and awareness of why such challenges arise and how can teachers overcome these challenges to create space for learner's interaction. It should also serve to improve my teaching abilities during SOL, once I complete my university degree and take on the role of a lecturer of Applied linguistics and TESOL at a university.

3.1 Interactional competence

Interactional competence has gained attention by many authors [12–19]. Chomsky defines the idea of competence as the native speaker's knowledge of his language. His definition neglects the importance of studying language in its social context, which goes against the view of sociolinguists. Chomsky's idea has been criticised by many authors, Hymes [20], opposed that competence does not only refer to an individual knowledge but also how an individual uses the language in social contexts. Interactional competence has influenced the development of language learning and teaching, in terms of pedagogical and socio-political development. One of those influences is the language learning and teaching focus is going beyond the grammatical competence by integrating a conversational component in language testing. This influence has been caused by the placement of the direct method and the reform movement that was used alongside the grammar translation method in 1880s. The direct method had a focus on oral fluency whereas the reform movement had a focus on pronunciation.

In light of the influence and Hymes idea of interactional competence. Interactional competence can be defined as the speaker's ability of expressing their ideas and achieving understanding. Walsh [21] suggests that some learners both ether native or non-native speakers face difficulties in conveying the simplest meaning. This is caused due to the great emphasise on the accuracy, fluency and appropriate linguistics forms of learners produced speech by teachers.

3.2 Classroom interactional competence

Conceptualisation of classroom interactional competence (CIC) "is the ability for teachers and learners to use interaction as a tool for mediating and assisting learning" [9]. This means the CIC method places interaction at the centre of learning. The main aim of CIC is to help both teachers and learners to enhance CIC. Also, to produce classrooms which are more dialogic [9], Walsh [9, 21] believes that teachers have different levels of CIC and he emphasis that the different level of CIC is not determined by the language level of the speaker. CIC is measured by looking at how good teachers can manage interaction to maximise students' learners learning opportunity. In fact a research by Walsh and Li [10] show that teachers can create space for learning by shaping their language and using strategies such as scaffolding, clarifying and summarising.

Previous studies have shown an effect on learners' participation from teachers talk [22]. Walsh [22] analysed transcripts, which showed the ways teachers can construct and obstruct learners' participation by their use of language. For example, using strategies such as scaffolding and seeking for clarification are ways that can construct learning. Meanwhile, filling in the gaps for learners' participation without using the strategy of wait time, can obstruct learning. In fact, the use of wait time has shown a great advantage on learners' learning opportunities. Yaqubi and Rokni [23] have explored the effect of using wait time on learners' participation, the results showed that limited wait time affects negatively as the results show that teachers end up

filling in the gaps and from Walsh [22] it can be seen as a strategy that obstruct learning opportunities for learners.

Shaping learners' contribution influences learners' participation in different ways. Firstly, when teachers shape learners' participation to make it more meaningful and understandable has an effect on other learners. By making sure they understand what other learners are trying to say, which makes them exposed to meaningful input and they have the opportunity to interact and reply to other learners' participation. Secondly, teachers shaping learners' participation helps learners to use appropriate interactional strategies to say what they are trying to say [9, 21].

CIC is not only seen to be use by teachers but also learners in class and in small group discussion [24, 25]. Sert and Walsh [25] research explored learners' development of CIC in the language classroom. Their findings suggest that learners' use "I don't know" to express insufficient knowledge in the classroom. But the question is while teachers are monitoring small groups do they use CIC and what effect does it have on small group work. As this research is looking at small groups in SOL, it is worth looking at how CIC look like in breakout rooms, especially when teachers enter the breakout room to monitor.

3.3 Interaction and collaboration between learners

The role of learners' interaction Collaboration has been greatly researched in language learning. Most research has demonstrated the benefits of cooperating learners' interaction and collaboration in the classroom. The findings of this research also suggest that such collaboration between learners achieves in deeper learning, better grades, longer retention of information, greater communication and teamwork skills, and a better understanding of the professional environment in which students will work [26]. However, Others have observed that students in online classroom context, often have difficulties coordinating their interactions and achieving the benefits of peer collaborative learning [27, 28]. Hence, to achieve the benefits of peer collaborative learning, instructors must create an effective classroom structure for teamwork. This challenge, of how to design synchronous video-based breakout room student interaction, is especially acute since, in this type of breakout room environment, the instructor may not be able to actively monitor all the breakout rooms at the same time. In the face-to-face classroom, an instructor can more easily observe, at least at a high level, all the team interactions at once.

Moreover, the proficiency of learners' language can influence student's interaction. As this study is focusing on international university students and their interaction during small groups, international non-native students will be interacting with native students. This could be an overwhelming experience for international students, which could also cause language anxiety. Pervious research has looked at non-native speakers (NNS) and native speakers (NS) interaction during small groups. One key finding suggests that due to NNS language proficiency, NNS do not feel comfortable contributing to group work discussion. As one student mentioned in Martine [29] research.

"Language ability is important for overseas students. Sometimes I cannot talk all of my ideas because of limited vocabulary or something. Even though we want to join the group, but cannot talk all opinions, just some of them. Understand yes but the language is the big problem." (Cited from [29], p. 14).

There are other factors that have an influence on NNS low contribution, such as how other culture's view silence in discussions. According to Martine [29] silence in some NNS students' cultures is valued. In addition, for some Asian students' disagreement

in discussion is not acceptable [29–31]. However according to Martine [29] findings NS regard disagreements is regarded as part of discussions in the western classroom.

Subject knowledge is also an aspect that has an influence on NNS contribution. As Martine [29] claims NNS think that they are less knowledgeable about teaching English than NS do. However, the findings suggest that NS that have participated in the research only know one language, which is their native language therefore they have not been through the second language learning process. This had had an influence on NS participation in the discussion, as some of the questions were about second language learning context [29].

But the results of this research may not be entirely reliable as the questions used in the individual interview included guided questions such as "At CELS did you ever feel uncomfortable working in groups that were a combination of non-native English speaking teacher/learners and native English speaking teacher/learners?" here in this question the participant will feel the need agreeing to the question but if the question was reformatted into "how did you feel at CELS when working In a group of NS and NNS? " the participants will not only share their true feelings but also respond with a longer response giving the researcher quality data to work with, which could also generate new findings.

3.4 Synchronous online learning

This section reviews the literature related to synchronous online learning. As due to COVID-19 learning has been shifted to full Synchronous online learning. This had many advantages, such as the ability for learners to study at universities abroad at Face-to-face courses, without the need to travel to the country. This has helped not only international students but also home students to save on travel expenses. Another advantage for teachers, it offered more teaching job roles at different countries. On the other hand, there is also literature that reported challenges of synchronous online learning, which will be reviewed later in this chapter.

3.4.1 The ZOOM video conference system

Before looking at the challenges of SOL, a background information on the Zoom video conference system will be discussed here. Zoom includes many features, which makes it more appealing to education organisations and teachers. It in fact has been widely used by teachers and many education organisations during the emergency global pandemic. These features will be looked at in more detail below.

Screen share and annotation tools are one of the features that zoom provide. This feature makes it easy for teachers to share websites, videos or documents such as PowerPoint slides and be able to highlight or write on the slides using the annotation tools. It also includes a whiteboard. Other features such as polling system that can be created before the lesson or during the lesson is also included. Teachers can use this feature to test students understanding or to use it as a voting system. Zoom also includes a chat box feature, where participants can send text, files or pictures to each other either privately or to the whole group. In terms of location privacy, Zoom includes a feature to hide participants background by using a virtual background. In addition, Zoom includes features to record lessons for teachers to upload or send to students for future reference [32].

A main feature of Zoom that this research will specifically explore in depth is breakout rooms. This feature allows teachers to divide students into small groups, which is similar to the traditional PiP Small group work. Teachers give students a

task to complete or a discussion to discuss in their small groups in their breakout rooms. The teacher can their set a time earlier for the breakout room or ends it when she wants with a 60 second notice to students that they will be send back after the 60 seconds. During the breakout room students can call their teacher into their breakout room if they need help. All of these features make Zoom a popular choice for educational organisation and teachers. However, recent research on Zoom and education during Covid-19 mainly focus on English language learning. But not much research looked at university level international student. However, the findings of previous research can apply to this research context, as both contexts include non-native speakers of English that have or is experienced language learning.

3.4.2 The challenges of synchronous online learning

Multiple recent studies have explored the online environment of the emergency remote learning due to the global pandemic. In Nambiar [33] study reports that more than 60% of the student beliefs that there is lack of interaction in Online classes. Their overall perception of online perception is negative. 87.1% of the students prefer traditional classroom over the online classroom. Previous research also supports this claim of lack of interaction in SOL [34–37], which they believe results in lack of community. To develop and enhance interaction in SOL, it is important to first study the relationship between SOL and learners experience. Exploring students' and teachers' perspectives, the challenges and learners' achievement and engagements during SOL. Previous studies explored this relationship and have concluded with both positive and negative effects [38–41].

The challenges that were reported were issues related to technical problems, internet connection, time, monitoring, task type and facilitating learners' interaction in SOL [40, 42]. Moorhouse et al. [40] looked at teachers challenges during SOL, one of the teachers in the research raised the issue of connectivity for Chinese students as not all Chinese students have access to VPN (virtual private networks) and that causes the issue of suddenly signing them off Zoom, which could interrupt the lesson [40]. This problem could also affect the learners' interaction in breakout rooms, because usually in breakout rooms usually it is a small group consists of 2 or 3 students and if only one student has good connectivity, then this could prevent effective interaction among learners. This is supported by one of the responses from McBrien et al. [42] research, describing the interaction in breakout rooms as constrained because of the issue of getting "kicked off" as well as microphone troubles.

Kohnke and Moorhouse [43] findings suggests that learners' interaction during Zoom progress slower and tend to be difficult for teachers to monitor as they can only monitor one group at once. Teachers cannot solve this issue by extending class time, because teachers need to be aware of screen time for learners, as extensive period in front of the screen can be tiring for learners [40]. In fact, previous researchers have introduced the term "Zoom fatigue" to describe the experience of tiredness or anxiety that extended SOL results in ([44], p. 437). To overcome this issue teachers should give breaks in between for learners. Because findings from Zhang [45] research suggests that learners face challenges to focus on lessons, Zhang [45] suggests that there is many possible justifications for this; firstly the extensive hours spent in front of the screen, secondly the technical problems learners face that may distract them as well as the awkward new experience there are encountering by speaking to students through a screens [45]. In addition, sometimes students are forced to speak to blank screens as some learners have their cameras off. Learners

may have also never met their classmates, which makes it more difficult for them to visualise their classmate and interact with them.

3.5 Facilitating learners' interaction in SOL

Synchronous online lessons are mostly concerned with the relationship between the learner and the material to be learned. However well-designed effective learners' interactions should be focused on. As an early research that was conducted by Soo and Bonk [46] on distance education suggests that learner-learner interaction is the more prominent type of interaction in distance education. The research asked three questions to eight experts in distance education. The questions were focused on the types of interaction, the first question asked which type of interaction is necessary for learning online. The second question asked the experts to order the type of interaction from important to least and the last question was asking for their justification behind their ranking. The findings suggest that learner-learner interaction is important, however the experts believed that asynchronous learner-learner interaction is more important than synchronous. Their reason is that learners chose distance learning because of their busy schedule therefore interacting asynchronously is more continent for distance education learners. However, this may not apply to learners who originally applied for present in person (PIP) courses, but due to the global pandemic they were forced to move online. But for students in different countries who experience issues of inconvenient class times due to the different time zones, than asynchronous interaction could be more convenient.

However, some studies argued that synchronous online lessons discussions have more benefits [47] as they provide a sense of immediacy, where learners can share their opinions and get feedback from each other in real time. Rinekso and Muslim [48] findings suggest that one of the reasons that learners preferred synchronous live discussions, is because they felt more as part of a community, and they were able to share emotional expressions and support to each other. In addition, learners agreed that synchronous discussions made them more active and motivated to follow the discussions. But they did have issues regarding internet connections and misunderstanding of instructions and tasks.

Furthermore Sutherland-Smith [49] suggested that online interactions elevate students' cognitive skills, and it encourages higher order critical thinking skills. This is an important skill for university level students, which could be difficult for second language learners to be critical thinkers in another language.

3.6 Breakout rooms

Teachers has used breakout rooms as a way for creating space for learners' interaction. As opportunities for learners 'interaction seems to be missing from most SOL. As well as this sense of community, which is often taken for granted in face-to-face classes.

The use of online breakout rooms is a new and recent feature teacher were forced into using due to the online shift. Therefore, research specifically focusing on this is still limited. However, a student who have experienced the use of breakout rooms during COVID-19 has shared her perception of breakout rooms in a blog. Whear [50] mentioned that the task given to them to complete in breakout rooms were a set of question that they had to complete in groups, which for her and her classmates seemed a "boring" task that did not help enhance their interaction in the breakout rooms. This suggests that the type of task has an influence on learners' interaction.

The question here is what type of task helps in enhancing their interaction in breakout rooms. Also is interaction only affected by the task type or are there other aspects affects this. An issue that has been mentioned by Whear [50] that could also have influenced learners' interaction, is that most students that are studying during the global pandemic did not have the chance to meet their classmates face to face. Therefore, it was difficult for them to speak to each other.

Previous research has reported positive effect of the use of breakout rooms in encouraging learners' interaction and cooperation. Mohamed [51] conducted a research in Emirates on the context of English language learning. Mohamed's researchers highlight the extensive responsibilities that teacher have in online classroom. They need to be aware of the difficulties they will face by monitoring group work, as they will need to move around all breakout rooms. They also need to think of ways to provide feedback to learners. Students review in Mohamed [51] research were in favour of the use breakout rooms. They believed that it improves small group work activities gives opportunity for peer interaction.

However, Mohamed [51] highlights that it is important for teachers to be aware of the challenges they may face during SOL. He advices teachers to familiarise themselves with zoom affordances and be prepared for any technical issues that may arise. He suggests to teachers some tips to improve their practice of breakout rooms during SOL (see **Figure 1**).

There have also been other studies in different contexts other than English language teaching, that have looked at the use of breakout rooms.

For example, Greyling and Ahmad [52] highlight the importance of providing sufficient structure and monitoring of breakout room activities. Cavinato et al. [53] indicate that although breakout rooms have many advantages, it can be difficult for students to share answers to questions together, and conversations may progress more slowly in comparison to traditional classroom activities. Another limitation noted is that the instructor can only assist one group at a time, which can be problematic for struggling students or those who are not staying on task. Instructors must ensure that students are adequately prepared for activities once they go into the breakout room since the instructor is limited to posting short Zoom announcements to further clarify or explain assignments.

During the global pandemic universities have shared an online guide on how to use Zoom for SOL for both teachers and students that included the use of breakout rooms. Newcastle University [54] the guide emphasised for teachers to give and present to learner's clear instructions. As well as presenting them with what they expect from

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1) assigning roles such as team leader
2) making breakout room groups based on the number of students in class
3) putting students with technical issues into one room so other students can stay on task
4) creating a group leader system
5) activating the share screen button so students can utilize this feature in their groups
6)   providing prompt assistance to students who ask for help
7) removing the instructor's photo when moving so students stay on task and do not focus on the instructor's presence in the room
8) giving encouragement to students for achieving class goals
9) offering incentives to groups that stay on task or excel in the breakout rooms

Cited from Lee (2021, p 513)

Figure 1.
Tips for breakout rooms.

students. They advised teachers to assign roles for learners for breakout rooms. They have highlighted the importance of adopting an active learning type of lessons to ensure learners participate in classroom and gain similar results as in PIP lessons.

Learners' participation in small group discussion is important, especially in an online environment, where learners are put in breakout rooms and teacher monitors only one breakout room at a time. Whereas in a PIP classroom teacher can monitor all the groups from far at the same time. Lee [55] explored learners' perceptions on their experience of using breakout rooms during COVID-19. Students recommended the need of a software update, which enables teachers to view all breakout rooms at the same time. Another recommendation from students is the need of teachers to assign roles and to encourage students to participate. As some students reported that sometimes students do not engage in the task and participate in the interaction [55].

4. Research aims and questions

The main purpose of this study is to explore teachers' perspectives on the use of breakout rooms to create space for learners' interaction in zoom. There have been many studies exploring students and teachers' perspectives on the use of SOL, but most of the studies were questionnaires not many studies used a focus group or interviews to gain deeper understanding of their thoughts and challenges to solve them. For this reason, the following research questions have been formed.

1. What challenges do teachers face in creating space for learner-learner interaction in breakout rooms?

2. what are students' thoughts on the use of breakout rooms?

3. How can teachers create space for effective learner's interaction in breakout rooms?

The research questions that have been formed, led the researcher into following an interpretive approach. The underlying idea of interpretive approach is that the research does not need to begin with a hypothesis to disprove or prove that theory. However, it lets the results to develop naturally. The priority of interpretivist approach is people views and interpretation of their experiences, which this research is interested in. Unlike positivism approach, which aims to prove or disprove a theory or the researcher's hypothesis. A crucial social actor points for the researcher to keep on mind while following an interpretive epistemology is the importance of appreciating the differences between people.

4.1 Data collection

This study adheres a qualitative methodology, the data for this study were obtained from three different sources: (i) focus group (ii) individual interview (iii) observation recording. The methods used to collect the data were carefully chosen to meet the study's aim.

The combination of two qualitative research methods allows the researcher not to only have been favoured by many authors [56–58]. As it does not only enrich the data but also allows the researcher to look at the research issue from more than one angle [56]. In order to uncover the real practice of learners' interaction in breakout rooms.

One breakout room of international applied linguistics and TESOL interaction was video recorded. The use of qualitative research methodology enables the researcher to expand on the knowledge of the issue addressed. However, this is not the case for quantitative research method as it aims to proof or disproof a theory [56, 57].

4.1.1 Sampling techniques

An important point to consider when conducting a qualitative research is the participants recruitment methodology, as it ensures the quality of the research [59]. The researcher will adhere a homogeneous sampling technique, which is selecting participants according to their experience. This means participants experience need to match the study, in terms of this study the participants need to have experienced the use of breakout rooms either as teachers or students.

It has been advised in research methods literature that 6–10 participants for focus groups is an appropriate number [57]. Therefore, for both focus groups the researcher has decided on 10 participants, however because of students' busy schedules only 6 students and teachers were involved in the focus group. Considering teachers' and students' busy schedules. In terms of group composition, it is important for the members of the group to have one similar characteristic. Therefore, the cohort was divided into two groups according to their role (teacher or student) for the first focus group participants are all representatives of teachers from a postgraduate applied linguistics and TESOL course at either UK or Saudi universities. It was made sure to include two different contexts, as this will generate different ideas and experiences. The second focus group are all international students from the masters applied linguistics and TESOL course at Newcastle university, that were selected randomly according to their availability.

The sample of the second focus group included international students' representatives from the masters applied linguistic and TESOL course at Newcastle university. It is true that this research aims to look at the challenges faced by teachers and their perceptions; however, it is important to gain students views too. According to Barbour [56] this knowledge of community groups is important as it gives insight into the diversity involved. Moreover Krueger & Casey [60] names this as a double layer design, which is involving two different participants types either by role or geographic area. This enables the researcher to compare and contrasts between the participants type or region.

4.1.2 Focus groups

One great advantage that focus groups allows the researcher to study is attitude formation. This could help the researcher to see to how strong participants belief in their views, which can be studied by the discussion that happens between participants. Moreover, attitude formation also helps to give insight into the reasons behind participants views. For example, previous experiences can affect the way they view interaction in breakout rooms [56]. This advantage is not apparent in individual interviews. Therefore, having focus groups as the first stage of this research is important, as it will also help in choosing participants in regard to interesting comments that have shared that needs a follow up. with strong views for in-depth individual interviews.

Teacher and student focus groups was the first data collection collected, an email was sent to all international postgraduate Applied linguistics and TESOL students. 6 students were randomly chosen regarding their matching schedule. The questions used for the focus group were made in relation to the research questions.

Students focus group	Teachers' focus group
What challenges have you faced when using breakout rooms? How did you overcome these challenges?	What challenges have you faced when using breakout rooms? How did you overcome these challenges?
Do you think breakout rooms are helpful and why?	What strategies or ways have worked for you in creating space for effective learners' interaction in breakout rooms?
What are the positives and negatives of breakout rooms?	

Table 1.
Questions used in the focus group.

The students focus group discussion was based on questions that were sent to students before the meeting as a task to be completed. Similarly, the teacher's focus group discussion followed a similar procedure as the student's focus group. However, the preparation questions were different. **Table 1** includes the questions used in the focus group.

4.1.3 Individual interview

Following a focus group with an individual interview is useful, as it enables the researcher to good preparation plays an essential role in the success of an interview. In this study, some interview questions were brainstormed with the aim of guiding the researcher's conversation with the interviewees. As stated by Smith [61], brainstorming a series of questions linked to the research question is the first step in preparing for semi-structured interviews. A semi-structured interview was adopted with three teachers and students from the focus group to gain in depth data. The semi-structured interviews included the use of springboard (See appendix 2) that included six comments either from students or teachers focus groups. The comments that were chosen to be included in the springboard, were chosen in terms of the themes that were identified. Six themes were identified from each focus group and one comment from each theme was included in the springboard. The interviewee asked the participants to share their opinions on each of the comments and to expand on them if needed. This gave the opportunity for the research to follow up on interesting areas addressed by the interviewee. It also gives the opportunity for the interviewee to give detailed responses.

4.1.4 Observation

The researcher undertook one breakout room observation, this sought to provide in-depth exploration of the actual practice. As noted by Clark et al. [62] observation as data collection method is useful for the researcher as it illustrates what happened in the classroom and provides evidence. The breakout room that was recorded for observation is from a master's module, teaching English for academic purpose. On Zoom it was not possible to record breakout rooms, however as the researcher is a student attending the same module, it was possible for her to screen record the breakout room she was participating in by using the computer system. It was made sure by the researcher to take students consent in advance. All of the students in the breakout room were students of applied linguistics and TESOL, two were native speakers of English and three students were non-native speakers from China. The researcher will conduct a conversation analysis on the recording.

4.1.5 Pilot study

To ensure that the study was executed correctly, a pilot test was conducted before the research focus group interview was scheduled. The tests were done with six applied linguistics and TESOL students who would not be participating in the main research. This helped to determine any needed changes to the focus group by identifying and analysing potential issues. For example, it is the researcher first time conducting a focus group. Therefore, the researcher had to test and understand the role of a moderator in a focus group. As the behaviour of the moderator can highly affect the validity and reliability of the study. Also, the researcher needed to make sure that only including 6 participants in the focus group will be enough to reach an effective focus group discussion.

4.2 Data analysis

Focus group and individual interviews were audio recorded and transcribed for thematic analysis, which is regarded as one of the most common data analysis methodology [63]. Bryman [63] suggest that the best type of data analysis method for researchers that has no, or little research experience is thematic analysis. Inductive thematic analysis was applied to facilitate the identification of repeated themes which are remarkable in the participants experience ([64]cited by Kaypak and Ortactepe, [65]). According to Dornyei [66] The first stage of thematic analysis was transcribing the recordings, which the Zoom software automatically conducts, the researcher re-read the transcripts to check for any mistakes in the transcriptions. Secondly, the researcher coded the transcription by colour coordination. Finally presenting, analysing and drawing conclusions from the data.

In regard to the coding stage, Braun and Clarke [67] breaks down into six sub-stages: "Familiarisation, initial coding, identifying themes, reviewing themes, defining themes and evidencing themes" (p.280). The researcher made sure to follows the six stages in both the focus group data as well as each individual interview. The next chapter will present the themes identified and the findings.

For the observation data the breakout room was video recorded then a conversation analysis (CA) following Seedhouse's [8] principle of CA was applied to the recording. After the researcher have applied CA on the transcript it was shared with other master students at Newcastle university, who were students of Applied linguistics and TESOL. This was done to make sure that CA was done as accurate as possible. This research does not apply Seedhouse's [8] aspect of pure CA, which is having a theoretical hypothesis before viewing the video recording. But it follows an applied CA, which is setting aims before observation. This research aims to observe interaction in breakout rooms and any challenges that arise.

4.3 Validity and reliability

To ensure the validity of the research, the researcher conducted three different data collection methods. In addition to including participants from two different contexts. This method is referred to triangulation. Some researchers believe that he validity of the research is enhanced if a researcher follows the approach of triangulation [68, 69].

In addition, the strategy used in individual interview, which as stated previously is presenting participants with comments from the focus group discussion is regarded as another method to enhance the validity [69]. Creswell et al. [69] refer to this strategy

as member checking, they suggest that it is best if the researcher conducts a follow up individual interview with participants. However due to busy student and teacher's schedule the researcher was only able to conduct six individual interviews (three individual interviews with teachers and three individual interviews with students) due to teacher's and student's busy schedule. Member checking strategy is used to determine the accuracy of the focus group findings.

To ensure the reliability of the research, the researcher conducted a pilot test to test the questions being used in the focus group. As well as brainstorming a series of questions linked to the research question. As according to Smith [61] is the first step in preparing for semi-structured interviews.

4.4 Research ethics

The researcher follows the Newcastle University's 'Code of Good Practice in Research'. Interviewees have the right to refuse to continue or cancel at any time they wish. Interviewees are informed that the recordings will be deleted as soon as the researcher dissertation have been marked. The recordings will not be shared with anyone, only the researcher will listen to the recordings. It will be made sure that the researcher keeps full contact details of participants, in case of any changes that need to be made.

The research study was approved by Newcastle university. The ethical form included aims, research question, process of data collection and data analysis methods. Ethics approval forms are attached in the appendices with the researcher's supervisor signature (see appendix 1). All participants data were saved in a folder in the researcher's personal computer, where it cannot be accessed by anyone other than the researcher. Participants personal details were strictly confidential in this study. Participants have been provided with a research information sheet that included detailed information on the research as well as a consent form, as it was important to collect participants signed informed consents prior to the research.

4.5 Cameras off

The first theme identified was teachers challenge in getting learners to switch their cameras on. Teachers from Newcastle university believe that it is crucial for all students to have their cameras on. It has also been a rule that has been introduced during the global pandemic that learners will be marked absent if their cameras were off during SOL. From the dialogue it can be understood that teachers from Newcastle University rely on facial expression to have a complete interaction with their learners.

Looking at the data from the student's datasets, it can be seen that they had mixed views. Some learners felt strongly about having cameras on for them to be able to have a complete interaction. However, others felt that it was against students' rights for teachers to force and insist on learners to have their cameras on. Their justification for not having their cameras on relates to privacy, some learners not comfortable to share their location information. As most students at Newcastle university live at students' accommodations their location can be easily figured out by their background or from their window view. However, this can be easily by using the background filter feature on Zoom that can cover the background by adding a different background. But not all students may be aware of this feature, and some may be aware of it, but not know how to switch it on. Therefore, some students may still be refusing to switch their camera on due to the worry about revealing their location. Some learners have reported that they turn off their cameras due to their appearance.

Extract 1.

> *Student: On zoom the lecturers are sometimes more than 1 hour and its hard to stay still for that long especially at home I feel comfortable when to wear whatever I like and not play attention on how I look on camera.*

However, learners need to be aware that if classes were present in person (PiP) they would need to attend classes for the whole class and also need to be dressed appropriately for the class. Therefore, they should make the same effort in an online environment too. Meanwhile the majority of the students have confessed that they sometimes do not have their cameras on because they are not ready for the discussion. This highlights the importance of preparing learners before class, which relates to the preparation task theme that was identified for the data.

Extract 2.

> *Student: I used to turn off my camera and my microphone just because I did not finish my preparation, I did not review for that class so. I did not have anything to say so, I would turn on turn off my camera and microphone.*

It has been observed from the recording of the breakout rom that one student had her camera off and she did not participate at all during the breakout room. The observation data shows when the teacher entered the breakout room, she did not ask the learner to switch the camera on and did not try to interact with the learner. In these situations, teachers should try and encourage learners to turn their cameras on and participate. A justification behind learner having her camera off can be relating to her choice of privacy or appearance as mentioned earlier. or it can be related to the content of the discussion. She might not be ready for the discussion, as there was no preparation work assigned for this lesson. Another possible factor could be related to the fact that the context was about UK educational system and the learner is from China, therefore the learner might feel less knowledgeable about the context, which makes her demotivated to participate in the discussion. In this situation preparation work before the online classroom is crucial, we will look at this further later in this chapter.

Looking back at the Saudi teacher's context, they are forced to deal with cameras being off for learners as well as teachers because of the cultural privacy morals. Therefore, they mostly feel it is acceptable for learners as well as themselves to have their cameras off in online teaching situations. As they feel they do not specifically need facial expression to have an interaction with learners. However, what the researcher found surprising from the data is that one of the teachers who experienced teaching online at both contexts (UK and Saudi) agreed with teachers from UK as teaching online becomes challenging when students have their cameras off.

Extract 3.

> *Teacher "imagine you're teaching this group and there's no cameras on and there's no microphones on how would it affect you how would you feel as a teacher because we rely as teachers on feedback, the most important thing. Without feedback that we can't do our job".*

> *Teacher D: "I don't think in our situation in Saudi Arabia, because especially if you're teaching girls section. That it's normal over there, that they don't even open anything*

> *so sometimes you talk and you not sure that they're actually there is somebody, so this is a real issue that I faced in the past in like in the last term You just find you know, a muted class."*

From this dialogue it can be seen that cameras being off has become normalised for Saudi teachers. As according to the cultural morals of Saudi Arabia, most women cover their faces in front of men, for this reason male teachers are used to interact to people without looking at their facial expression. However, for UK teachers this is not normal as for them facial expression is a part of interaction, therefore facial expressions are perceived to be necessary to reach a complete meaningful interaction. Having the privacy and cultural issue of cameras in Saudi Arabia sets the tone that no teachers or organisation may enforce students to have their cameras on. Therefore, teachers were forced to find ways of dealing with this by using different strategies.

Extract 4.

> *"I believe there are other ways to substitute that, for example, I always ask them questions and I choose the students myself to answer this is a way to check if they are there or not, so they know from the beginning of the class that there is at any point that they will be called off to participants so that keeps them on their toes all the time."*

From extract 4 we can see that teachers have been starting to find different ways to deal with the issue of cameras being off as well as encouraging learners to participate. I believe that this strategy suggested would be a good solution that would help with the issue of making sure students attend the class fully concentrated. As teacher do not have to check if each student is attending because in an online situation when learners are having cameras off teachers are not able to know if students are attending especially in breakout rooms when learners are working alone. if students are warned that teachers will ask questions directly to students spontaneously students will pay more attention. This strategy helps to motivate learners to make use of breakout rooms, as any students can be asked by the teacher to about the breakout room task at any time. This takes us to another challenge teachers have been experiencing, which is motivating learners to participate in breakout room interaction.

4.6 Participation

As seen in the previous section some students turn their cameras off to prevent participating in the discussion. This has been mentioned by teachers as a challenge they encounter, the lack of learners' participation. To be able to solve this challenge, teachers need to understand the reasons behind leaners low participation. According to learners focus group possible factors were mentioned that might be one of the reasons behind learners' lack of participation. Those factors are learners' knowledge, language anxiety. When teachers were asked about their perspective, they only mentioned that learners might not be prepared or not motivated, they were not quite aware of non-native learners' language anxiety. This shows the importance of the need for teacher to include learners as part of their reflective practice process. Teachers need to interact to learners to find out their perspectives and point of view of certain matters.

Extract 5.

> Researcher: *"why do you think some students don't engage in breakout rooms?"*

> Teacher: "some students are not really motivated, as it is quite hard to motivate and encourage learners to take part especially in an online situation.
>
> Researcher: what do you think helps encourage learners to take part in breakout rooms?"
>
> Teacher: "sometimes when students are given preparational task to do, so when they prepare for the class topic, they often more encouraged to take part and discuss."

In this dialogue form the teacher individual interview, it can be seen that teachers are facing challenges in motivating learners to take part in interactions during VLE. The teacher in the dialogue has also mentioned preparational tasks, which will be looked at in this section.

Preparational task that is given to students for some classes for preparation for breakout rooms discussion, UK teachers had a strong opinion towards the importance of preparation task to enhance learner's interaction in breakout rooms as well as the international students from Newcastle university that were involved in this research. However, a teacher from Saudi Arabia claims that this point could also be a cultural difference, as preparation task in Saudi do not seem to be effective. This is because learners in Saudi Arabia do not seem to complete the preparational task set. However, this does not seem to be the case as teachers from Newcastle university also state that learners do not often complete the pre task, especially if it was reading a chapter prior to the class. Therefore, one of the reasons behind learners not engaging in preparation task could be because of task type of the class preparation.

Extract 6.

> Teacher A: space to explore the information that they have learned as prep and I do think it yields better breakout room responses, or better teaching in general, better learning online in general and so yeah, I would agree with assigning preparational task.
>
> Teacher B: I just wanted to comment on this specific comment about the prep work, I would say it does not work with these for my students maybe it's a cultural difference, which I think could be usually. I am not really sure what are the reasons behind this.
>
> Teacher c: well for my students they usually do complete the tasks I ask them to do before the class but some time when its pre-reading chapters or watching pre-recorded videos that are quite long, they do not complete it.
>
> Teacher A: Yeh I feel it could be according to the type of task given to them.

Learners' views on the preparation task are similar to what UK teacher have suspected. They have stated that when preparation takes a long time, they often not complete it, however they complete tasks if it was monitored by the teacher and had a deadline. They gave an example of quizzes, which teachers can utilise the zoom affordances to create these tasks for learners to ensure the completion of these preparation tasks. Using the quiz option teachers are able to design quizzes prior to class time and give few minutes at the beginning of class for learners to complete the task and be able to discuss their answers at breakout rooms.

The breakout room from the observation data did not include a preparation task before the class. For this reason, students spent two minutes to read and familiarise

themselves with the task on hand. If students were prepared prior to the class, they would likely have had time to generate more ideas for discussion which will have resulted in more effective interaction. As well as complete their discussion, which they did not have a chance to do so. As said earlier task type has an effect on student's completion of the pre-task, for this reason teachers need to develop their technological competence for them to be able to provide task that suits the online classroom environment, because materials used in the traditional classroom cannot be used directly in a VLE. One task most students agreed that it was difficult to complete at breakout room is reading comprehension. Students were asked to read a chapter during breakout room time and answer comprehension questions. The issue with this task is the overload, learners have limited time in the breakout room therefore reading a chapter with their classmates and answering 4–5 questions is a lot for breakout room time. This task can be adapted to the online environment by assigning pre-reading for learners with the questions. During the breakout rooms learners could discuss their answers together.

An interesting point addressed by learners in relation to the software that was used for the reading task mentioned earlier, is that learners was asked to use a shared document to answer the questions. Students were able to see other groups working, which encouraged and motivated learners to work together as group to complete the task before other groups. It also allows learners to access the document later and look at other groups answers and ideas.

4.7 Language anxiety

Students' participation in breakout rooms discussion is also affected by learner's language anxiety, as the participants of this research are non-native speakers of English studying in an English university, that has both native and non-native speakers of English.

Extract 7.

> *Student B: Yeh I agree with this comment, some students maybe their English is not good enough, and if you if you have a person who is a native speaker of English in the breakout room That kind of doubles up.*

The observation data shows that two non-native learners were not participating at all in the breakout room discussion [70]. This could be because learners are pressured in terms of their English language level, as student in this course will be or are English language teachers. In addition, from the focus group data it has been stated by international students is that in their countries they look at how native their accents sound like. Rather than looking at how well they can interact and use language to get their message across. As it has been mentioned in the previous section that the task given was on English for academic purpose (EAP) and the learners who have participated have had more experience in working as EAP teachers, so they had more to say. This could possibly intimidate other learners from participating.

However, we cannot say for sure that the reason behind this is due language anxiety. Because in the same breakout room there was a native student that also did not participate and a non-native student that have participated. However, another possible explanation not related to language anxiety that could have had an effect, is that learners do not want to disturb the structural organisation of turn-taking. Therefore, learners tend to stay quiet until the speaker mutes their microphone. Especially if learners had their cameras off learners will not be able to know if they are done with their turn until their

microphones are switched off. These are all assumptions; it would have been best if the researcher was able to conduct post-observation interview with learners to find out why the three learners did not participate in that class.

Teachers need to be aware of the pressure that many international students go through to speak up and interact with other students, due to their language proficiency level. This is essential in particular when they are setting up breakout rooms to think and plan a head which students goes to which breakout room. A suggestion by one student was raised that teachers should include one confident student in each group to encourage shy students to speak up.

Extract 8.

> *"teachers should assign A person that will be in charge of calling other people to talk, maybe that could encourage the communication in the breakout rooms."*

However, from the observation data it can be clear that assigning roles automatically happens by students themselves, in the recording the native student took the role of being in charge. This can be good or bad, if the student in charge is able to encourage other learners to share their views by using CIC, this could be a good way to create effective learners' interaction. However, if native learners take charge and answers all the questions by themselves or with only one confident speaker, as it has been observed in the recording, then this could be an issue. As if this occurs it would be hard for non-native students to participate and hence to learn.

Extract 9.

> *Student B the first one, match the pre sessional course. °i thought °.*
>
> *Student A: it might be foundational because it says undergrad.*
>
> *Student B: But I noticed that there is entry requirements if a student's fail to meet the entry requirements, which means he should attend the pre sessional course.*
>
> *Student A: I thought pre sessional course is for masters though,*
>
> *Student B: oh, yeah, for masters.*

It is apparent from the extract above that student A, who is a native student was able to clarify a point for student B who is non-native student. But student B disagrees learners starts negotiating for meaning, which not only encourages participation but also active learning this is a theme that have been identified and will be looked at later.

4.8 Monitoring

Another challenge that the datasets have revealed is related to monitoring, teachers are experiencing challenges to monitor learner's interaction in breakout rooms. They have mentioned the challenges they face while monitoring. One of those challenges is that learners stop talking when the teachers enter the breakout room. Secondly, the challenge of getting around all the breakout rooms. One point that have been raised by a teacher in the focus group is that in a real face to face classroom teachers can monitor from far and monitor close to groups that seem that they need help however this is not the case in SOL as teachers do not have the ability to monitor from far. However, this could be a point that the zoom system develops in the software. Which is add the feature

of "CCTV". As one student suggested. Not to only help teachers monitor all groups but also to not interrupt learner's interaction as learners have stated that teachers going in and out of breakout rooms can be distracting for them. However, potential complication may arise for example some students may not feel comfortable being observed in this way. It may require written consent from the students, for example, to be ethically viable.

Extract 10.

> *Student D: If they had like a CCTV they could see With the cameras on who what group is struggling and what group will be working like I do not think the audio will be a problem, but yeah I think that that could."*

One of the points raised is the use of shared document such as one drive or Google doc to help with monitoring. Some teachers have mentioned that this is something they normally use to help with the monitoring. But not all teachers felt confident in using technical software during breakout rooms. To avoid technical issues, which will be discussed in further detail later in this chapter.

4.9 Classroom interactional competence

Walsh and Li [10] highlights the strategies teachers can create space for learning through interaction in traditional PiP classroom, which could also be applied to SOL. The qualitative datasets revealed that teachers were aware of the importance of interaction in creating effective learners' interaction. One of the responses have said that they believe that teacher's interaction is important as they feel it effects learners' engagement in breakout rooms. They have stated that it is crucial for teachers to be trained on how to interact with learners that it would encourage their interaction in breakout rooms. This finding is similar to Walsh's [71] research findings where he emphasised on the importance of teacher online interactional competence.

Extract 11.

> *"I think we need if we are going to have breakout groups and if staff are going to join them, then, how do we interact effectively within them is important. Because the way we interact and have a really big impacts on what the students do and they're learning outcomes, you know, and so I think it's really important that stuff kind of made aware of effective interaction practices for breakout groups. How to encourage students effectively."*

In the observation data Student B was able to create space for learning by using one of the features of CIC, which is using and talking about their experience in relation to the task they are completing. From the observation it is also apparent that when teachers enter breakout rooms to monitor learners' interaction it discouraged learners form continuing their interaction. However, student A wanted to discuss and share his thoughts on student A response but decided not. A possible justification could be because of the presence of the teacher. It is believed by teachers that at these times being able to interact to learners in a way that encourages them to speak and take part, will be helpful. According to Walsh and Li [10] strategies such as extended wait time, scaffolding and shaping learner responses and so on are all strategies that could help in achieving effective learners' interaction. From the observation it is apparent that the teacher spent 2 minutes talking and sharing her opinion on the point the learner addressed. This means learners only had 4 minutes in the breakout room for discussion and to complete the task.

Extract 12.

16. Student B: I heard heard ((teachers comes in)) ((student A turned his microphone on to talk but decided not as soon as the teacher entered)) from some of the some of my classmates that they were they were taking the class of 12 weeks before before the master degree. So that could be pre sessional. (0.6) And which may last for up to a year. That could happen. Some of my friends who study in Germany have this experience that they normally have in that language course lasting for a year or even two.=.

17. Teacher: =It's I mean, it's happening more and more as universities are wanting to get more students in, there'll be lowering the entry requirements. So instead of saying, you know, come and do a six-week course, and work on your IELTS before, there'll be finding different ways to let in students who do not have the English will come for a whole year that way we can charge you extortionate fees for a whole extra year. And we can take you with a heart, a lower entry requirement, which means we are accessible to more people. And not that I'm cynical at all, it's a business move.

In terms of the teacher role in breakout room, she could have taken this opportunity to promote effective learner interaction by using interactional strategies. However, in her first turn she only agreed to the learner's response and in her next two turns she interreacted with the learners. The breakout room included a learner with a muted microphone and camera was switched off, the teacher did not interact with the learner to attempt learner participation [72]. Another interactional strategy that could have promoted learner interaction, is not to interrupt learners turn (see line 19 and 20) but to allow learner extended turn, which will able the teacher to make full and useful response afterwards [9].

However, during the breakout room confident learners took the role of the teacher and used interactional strategies to help each other, which promoted in effective learners' interaction. The interactional strategies learners have used included error correction, seeking for clarification and scaffolding, shaping responses and error correction.

Extract 13.

Student A: pathway might be pathway.=.

Student B: =Actually, I do not quite understand what's what's the pathway.

Student A: Like it. It's very, it's kind of like a British thing because I know people that have done this before they went to undergrad degree. They had to do this course because they did not have Like a levels which are our high school exams, they had to go into a different course. And when they pass that course then they could go and do the undergraduate degree. So the course I guess it was called like a pathway.

Student B: (0.2) Okay, I thought that that was GCSE or something.

Student A: No GCSE is not for uni. GCSE is for a levels and a levels is for uni. But it's kind of like that you have to do the GCSE. So you can do the A levels, you have to do the a level. So you can go to uni it's like a pathway.

In this extract, Student B had trouble to understand the terminologies, therefore he was asking for clarification. Student A, who is native defined both of terms Student B found difficulties with. This shows how including both a mix of native and

non-native students in the same breakout rooms has a positive effect. Native students can help with explaining topics that are related to the British context, for example, in this extract the topic was British education system. The second extract shows an example of shaping learner response, which is also between a non-native student and a native student.

Extract 14.

> *Student B: Some of the next one ((teacher leaves breakout room)) ° normally may last for up to a year ° one after individual session where students can take [work-shop.] normally may last for up to a year °.*

> *StudentA: [Writing support workshops].*

> *Student B: Writing support workshop.*

However, in the focus group students have not mentioned the importance for them to have native students in the breakout room. But learners have reported that they feel encouraged when they are in a breakout room with confident and active students. As shown in extract 14 student did not specify the background or level of the student but the student, they have mentioned was an international non-native student. Assigning groups for breakout rooms is also an aspect that has an effect on learners' interaction. As including learners that are active as students have suggested as being encouraging for us to participate. Teachers should consider different strategies of grouping learners that could encourage learners' interaction as well as active learning, which is the next theme that was identified.

4.10 Active learning

Both students and teachers believe that it is important for teachers to use more of breakout rooms. As it enables learning to be active learning more than passive learning, which according to some teachers does not help with achieving deeper learning.

Extract 15.

> *Teacher: moving away from a kind of monologue. You know and getting students to engage more, and I think having breakout groups. is a really good way of having Students engage with these ideas and hopefully that for getting a deeper learning, then you get from just listening.*

In fact, some students have also stated that they preferred parts of lessons when they get to discuss with their classmates as they learn more from talking to each other. Some mentioned that the time they get in the breakout rooms is very limited and they can only discuss together for few minutes and they would prefer it to be longer.

Extract 16.

> *Student E: I feel the use of breakout room is an advantage at class as it makes us do something rather than just listen to the teacher for one or 2 hours. But we never have enough time to interact and finish the work.*

But the issue is how teachers are able to encourage learners to participate in breakout rooms to achieve active learning. Because simply using breakout rooms

does not ensure active learning as it is apparent in the observation data recording. It shows that students only have 6 minutes to discuss and complete task. This is not enough time for learners to discuss and interact, teachers need to make sure to give extra time for learners. Because some learners may encounter connection problems that could takes them longer to enter breakout room or unstable connection in the middle of their conversation. In addition, monitoring during breakout rooms take time from learners' discussion.

Extract 17.

> *lStudent B: (0.4) So now the question falls on your foundation, Graduate Diploma pathway.=.*
>
> *Student A: = I think the first one is foundation.*
>
> *Student B: Yeah. Yes.*
>
> *Student A: Because in (0.1) oh never mind (Breakout room time has ended).*

The extract above from the observation data, shows that students were going to use CIC and clarify their reason behind their answers (see line 43), which not only create space for learning but learners would also achieve higher order thinking skills and deeper thinking. Therefore, teachers should take this into consideration, because the extract shows the importance of active learning in attaining deeper learning. As this issue is not apparent in traditional face to face classrooms. For this reason, teachers should apply different timings and strategies for small group from traditional face to face classroom small group work. This also relates to the task type, and how they can design or use tasks that are easier to complete in the time given. This issue of task type relates to syllabus design and using different technological systems and features of zoom to help achieve active learning in breakout rooms. This will be looked at in more detail in the following theme.

4.11 Teachers' technological competence

In terms of the affordances of Zoom, some teachers have stated that they avoid trying different features on zoom because they are too afraid. They normally send questions in the chat box for learners to answer or ask learners to take a screenshot of the PowerPoint slide that has the questions or an activity for them to complete. But they are aware of the importance of using these different types of features to motivate and boost learner's interaction.

Extract 18.

> *Researcher: And I can I ask what would be the reason behind not using these features?*
>
> *Teacher F: probably a bit scared because you know, sometimes we are scared that technology might go wrong, and then you know and. Yeah I think that's one thing and because zoom is all quite new. You know, for me, it's the first time to teach like this. I guess I am taking fewer risks.*

The dialogue above is from an individual interview, whereas during the focus group discussion not many teachers mentioned their technological competence being

a challenge. One explanation for this could be because of there were different teachers from different universities, therefore they did not know each other's well, which made them uncomfortable in sharing their weaknesses to others. Some teacher s in the individual interview, believed that they did not have the technological competence to not only use different online platforms to help mediate learners' interaction, but also the zoom features itself.

However, some teachers were more confident in trying to use different features. For example, the countdown notification. One teacher mentioned another way of taking advantage of this feature by using it to send questions for the task at a certain time. This shows that even without workshops, the more the teachers use the zoom system the more effective they get with this teaching system. Students' datasets report that some teachers do not allow participants to use all the features of zoom. Students in traditional face to face classroom can point and look at the same paper however in an online situation it is more difficult, as learners are not looking at the same screen. They have their websites and documents at different views, therefore its important for teachers to allow the "screen share" feature for students.

Extract 19.

> *Student B: Yes, I agree with share screen we can easily highlight on the document and everyone can see.*

> *Student C: Yeh in terms of technology, I feel teachers need to be creative because for task they give us a number of questions to answer on a word document. Which we most of the time one person answers by themselves so they should use technology and websites to make tasks more interesting.*

> *Researcher: Can anyone give me an example of an activity from a module that was effective?*

> *Student B: for example, we had to rate different online EFL tasks, so the teacher asked to work in group and each student rates on of the task and share our opinion in our breakout rooms.*

Students in extract 19 have given two different tasks that they felt engaged with the most. The first task asked learners to rate tasks in online websites, this is not just easy to access but also very relevant to the situation learners are studying in. This could be a reason why universities need to develop their syllabus and course modules to suit the environment learners' studying in and to make it relevant to the situation. The second task students favoured was based on watching a video and sharing their perceptions. Some issues can arise from using videos as activities in breakout rooms. First of all, it is time consuming, learners should be given the link to video prior to the class as a preparation task to prevent any time wasting. In addition, internet connectivity can disturb learners' completion of the task. Learners have also added that some teachers either forget or do not allow screen share which could be an issue when using videos in breakout rooms. As learners will not be able to play the video at the same and due to different internet connectivity strength among learners.

In terms of teacher technological competence, most of the teachers in this research belief that it important for the teacher to be very skilful in using technology to deliver classes online. As well as being aware of the different software's and apps that can be used in line with Zoom to deliver professional quality classes to students. As it is

shown from the findings some teachers were able to adapt through the shift of the online environment, whereas other has not been able to grasp the basics of online teaching, therefore another mode of reflective practice that joins teachers together to share their experience is needed. As teachers that have been able to overcome online teaching challenges can share their strategies to other teachers.

Teachers in this research both from Saudi and UK universities feel strongly about the need of workshops and technological interventions for teachers to help them with the shift of online teaching to deliver quality lessons. As most teachers when asked about their level of technological competence stated that they do not feel or did not feel ready to teach online, one teacher commented that they felt interacting to each other and sharing their experience similar to the focus group that was conducted for this research helps them find different strategies that could work to solve their challenges.

5. Teachers' and learners' perception of breakout rooms

In the SOL environment, it is inevitable that there will be a lack of learner's interaction, but the use of breakout rooms has shown a great advantage in creating effective learners' interaction as well as creating active learning. This study has shown that learners have favoured the use of breakout rooms and belief that it indeed encourages effective space for learner's interaction. However, Nambiar [33] research suggest differently, which students in that study perception of interaction in SOL were negative, their responses suggests that they felt in a traditional classroom there were more opportunities for learners' interaction. In this study students were in favour of SOL they also felt the use of breakout room did help with their learning. However, as seen in the previous chapter, students have reported some issues that have occurred during breakout rooms. These issues will be looked in more detail in relation to previous literature in this chapter.

The first question in this study sought to explore the challenges teachers encounter during their use of breakout rooms in their lessons. The second research question looked at students' perceptions, as this will give insight into the diversity involved. It enables the researcher to compare and contrast between the participants involved. Therefore, combining both research questions, result in rich data.

All participants of this research students and teachers (UK and Saudi universities) agreed that challenges occur during the process of monitoring breakout rooms. Teachers (UK and Saudi universities) stated that it is difficult for them to monitor every group. This has also been mentioned in previous research as challenge teacher faced during SOL. As seen from the findings some teachers felt the use of shared documents was an advantage as they used this to monitor learner's participation. But others were not confident with technology to be able to use these features. In addition, monitoring through shared document misses some aspects of teacher monitoring. As through shared documents teachers are only able to monitor that learners are on task, but they cannot promote effective learner interaction.

It has been suggested by Lee [55] that teachers should use graduate school assistants to help with breakout rooms monitoring. This could be a good strategy to test out, in addition to following a structure for monitoring as Greyling and Ahmad [52] suggests. This has also been mentioned by a teacher during a focus group he stated that following a structure to monitoring breakout rooms helps make the monitoring process more organised. Students also believe monitoring during breakout room sessions is a challenge, they suggest that there is a need of a zoom system update to

allow teachers to monitor all breakout rooms at the same time. Students believe that this could also help with participation as if learners know their monitored, they will be encouraged to participate. These findings are consistent with those to Cavinato et al. [53], their findings suggest updating Zoom to allow teachers to view rooms similar to a CCTV view is important.

In regard to the time of breakout rooms, which has also been reported as an issue by leaner. Previous research also supports this [40, 45, 53]. Cavinato et al. [53] states that learners may take longer in the online environment to complete activities and their discussions may also take longer. A possible justification for this is that some learners as seen in the results encounter technical and connectivity difficulties which could interrupt their interaction. A possible strategy to overcome this challenge is to extend class times and give more breaks for learners, to prevent "Zoom fatigue". Another strategy suggested by Robinson et al. [73] is limiting tasks into only one or two questions for learners to be able to complete the task in the allotted time.

Students in the focus group and individual interview reported issues regarding student's participation. This finding is consistent with that of Martine [29]. A possible explanation for low learners' participation may be related to the NNS student's assumption of thinking they are less knowledgeable in that context. As from the observation recording obtained in this study, the breakout room context was on UK education system, which is not similar to Chinese education system. Another possible justification could be related to cultural beliefs. The international students in the observation recording were Asians, according to Martine [29] in Asian cultures silence is valued and disagreeing with others is regarded unappropriated. It has also been stated by learners in focus group and individual interview that they sometimes are discouraged from participating when there are native speakers in the breakout room due to language anxiety. This issue has not been mentioned by teachers, which shows the importance of students feedback. Khan et al. [74] findings report that student feedback in teachers' evaluation system improves on the quality of teaching.

The analysis of the datasets show that learners' participation is closely related to learners' cameras being off. This is consistent with the findings of Palmerin [75] and Gherhes et al. [76], their findings suggest that learners do not turn their cameras on when they are not prepared for the lesson. This highlights the importance of including preparational task for students prior to Zoom classes to achieve learners' engagement and participation. Palmerin [75] add that teachers creating strong trust relationship with learners results in learner's participation during SOL.

Teachers as well as students from Newcastle university reported that when some learners had their cameras off, they felt it was difficult for them to interact to "black screens". This finding is consistent with Castelli et al. [77] their findings suggest that teachers find it awkward to interact with learners when they turned off their cameras, they described their feelings as "talking to yourself". However, by taking a student-centred approach, teachers need to make decisions based on what is best for learners. As it has been stated by one of the Saudi teachers, that this is concerned with students right of choice, Therefore, teachers should not force learners to turn their cameras on, but they can offer information and alternatives. First of all, as suggested by Castelli et al. [77] teachers can ask learners to add the preferred name on display in Zoom instead of their university name or initial. This will help teachers and other students to call each other with their names as it will build rapport between the participants.

Findings of previous research report that most students turn their cameras on during breakout rooms session. A possible explanation for this, is because in

breakout rooms students are in smaller group and breakout sessions are only for limited time. This is not consistent with findings of this research as students from the focus group reported that in breakout rooms there are times that other students do not turn their cameras on. However, Castelli et al. [77] suggest an alternative solution for cameras off issue, which is recommending learners to add their photos on their profile display in zoom. This will help learners and teachers to build a complete picture of other learners in the class. This will also help in creating a community and a strong relationship between students. Castelli et al. [77], Mottet [78] and Falloon [79] all highlight the importance of creating this community between students, especially in online education as learners can feel lonely. In this research context students are studying online during a global pandemic which alone is a challenge for students as they can be isolated, and this could affect their health. The findings of Irawan et al. [80] report that learners mental health has highly been affected by the shift of face-to-face classroom to SOL. The findings show students dealing with anxiety problems especially learners with low income, as they had to deal with expenses as well as being isolated alone and the new experience of studying online.

Task type also affects learner's participation, students' datasets report similar views to those Whear [50] reports in her blog. Learners' perceptions on the tasks used by teachers were not creative and engaging enough. Both students from this research and in Whear [50] blog have mentioned the example of questions and answers task as a "boring task". Teachers are also aware of the importance of using more creative type of task to achieve more effective learners' interaction in breakout rooms. Teachers from this research have reported that the task used in traditional face-to-face classroom cannot be used in online environment. This is consistent with the findings of Chan et al. [81], which suggests that teachers should use digital enhanced learning model to adapt face to face materials to suit online teaching environment. The DEL model includes four different frameworks (see **Figure 2**).

The DEL framework combines four frameworks that is used to evaluate the online tasks used in the VLE. The first framework in the model is Dial-e which consists of ten task design ideologies for teachers to follow to achieve the pedagogical aims of the class. The second model is TPCK, which includes a self-assessment tool for teachers to assess their technological competences This will help with teachers overcome the challenges they reported (see chapter 4) in regard to their technological competence. The third model is BRDT, which is based on blooms taxonomy model (1956). This model is concerned with learners critical thinking, which is especially important for students of higher education as stated in chapter 1. The BRDT model aims to answer the question of what type of activities would engage learners thinking skills in VLE. Finally, the fourth model is SAMR, includes different levels of the integration of technology from no tech to redefinition, which is the highest level that refers to using tech to create new tasks that is inconceivable in PiP classroom [81]. The combination of these framework in one model, enables teachers to develop their task design to suit the VLE and to achieve effective learners' interaction during breakout rooms that will achieve the lesson pedagogical goals.

5.1 Creating space for learners' interaction

This section will mainly answer the third question of this study, which is how teachers can create space for learners' interaction in SOL. The findings of this study
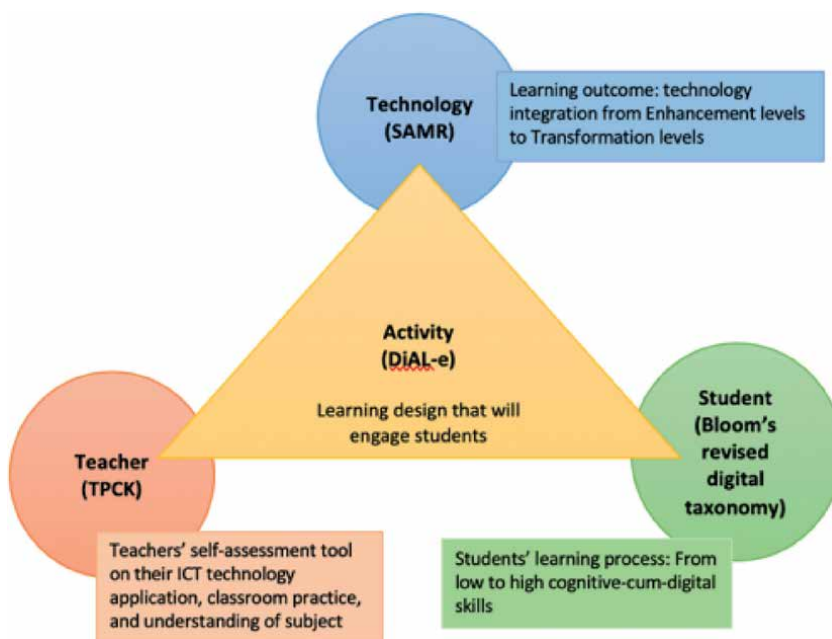
Figure 2.
The digitally enhanced learning (DEL) model cited from Chan et al. [81].

reported the factors that have worked for teachers in this study during Covid-19, which has also been seen in previous literature. The main strategy that has been mentioned by both teachers and students in this research is the importance of breakout rooms in creating space for learner's interaction. Teachers and students believe that creating breakout rooms help encourage learners to interact and discuss effectively together on the task set. But to achieve effective use of breakout room there is number of aspects that teachers and education organisation need to take into consideration.

5.1.1 Groups and assigning roles

The observation data findings revealed that combining native and non-native students in the same breakout room results in effective learners' interaction. As native learners take the role of the teacher and use interactional feature to help create opportunities for effective interaction. There is no research that support these findings, However, previous research in online small group work report findings that confident students take the lead, the findings are consistent with those in this research as their findings report that learners with good English proficiency often take the role of being a group leader [55]. The students in Lee [55] research have highlighted the importance of assigning roles as their believed that it gets tiring for outgoing students. Lee [55] findings also suggest the positive effect of grouping learners with similar language level together. This could be indeed a good strategy as it could give the courage and confidence for shy and quite students to talk, without worrying about their language level. The analysis of the data set reports that learners are asked to report back to the main room, without being assigned. But Robinson et al. [73] highlight the importance of assigning roles such as a recorder and a reporter, as it encourages productivity in the breakout rooms. To prevent responses from the same

students every class, teachers can use this strategy and give those roles to different students at every class.

5.1.2 Preparation tasks

A second suggestion to create space for effective interaction is setting preparation task, that not many previous research studied the impact and the importance of using preparation tasks on learner's participation. But it has been favoured by both teacher and students from this study. In addition, the observation recording shows the importance, as learners spent the beginning of the breakout room reading and familiarise themselves with the task. This could have been done before class to make use of breakout room time for learners' interaction [40]. According to [40] if students complete preparational task they make better use of breakout room time. Previous research that was based on traditional face to face teaching looked at preparation task before class, the study reported that assigning preparation task for students lead to 90% of student's active participation [82]. These findings are also consistent with those of Bassett et al. [83] where they explored the effect of assigning preparational task on learners' engagement during flipped classroom. Their findings suggest that preparational had a great impact on learners' participation as well as exam scores.

5.1.3 Reflective practice and workshops

The results revealed that teachers are in need for workshops to develop teacher's technological competence. This is consistent with the findings of Elsayary [84] research. It is believed that the use of videoconference will be still be included in higher education courses even after the global pandemic. For this reason, teacher training courses should include in their curriculum, a teacher technological competence development as well as e-classroom interactional competence. As the findings of this study suggest that teachers do not behave in breakout room in a way that would encourage learner's participation. According to Moorhouse et al. [40] teachers are in need of specific interactional competence to madidate and assist learners learning in VLE, as well as to facilitate learners interaction online.

In regard to teacher's technological competence, previous research shows that teachers were not ready for the online teaching shift [85]. The use department of education emphasise on the importance of teachers developing their technological competence "fluent users of technology; creative and collaborative problem solvers; and adaptive, socially aware experts throughout their careers" ([86], p. 34). This study supports these findings and show that teachers are in need of workshops and training on using the specific affordances of Zoom and other platforms to provide effective learners' interaction in breakout rooms. Findings of previous literature also support these findings and [43] highlight the importance of offering training for teachers to help them provide multiple modes of interaction for learners on Zoom [40, 43, 87].

6. Conclusion

This research aimed to identify the challenges faced by teachers in using breakout rooms and how they can create space for learner's interaction in breakout rooms.

As well as looking at learners' perspectives on the use of breakout rooms. The research methods that were adopted included two focus groups (teachers and students) followed by an individual interview and one breakout room observation. After data collection the researcher have conducted a thematic analysis on the focus group and individual interviews. For the observation data the researcher conducted a conversation analysis following Seedhouse [8].

Based on the qualitative analysis, it can be concluded that learners feel positive about the use of breakout rooms. But there are many challenges that may arise for teachers during their use of breakout rooms. The First challenge and most importantly is regarding teachers' technological competence, which this research and previous research report that teachers were not ready for the shift to VLE. Another challenge was regarding teachers' interactional competence. As it has been reported in the literature review teachers' interactional competence is important in creating space for learning by encouraging learners' interaction. The data from the datasets suggests that teachers are not using CIC effectively to encourage participation in breakout rooms. Other challenges that were reported in this research that was in line with previous literature findings are; monitoring, task type, learners' cameras off. The results indicate that teachers can create effective learners' interaction by setting preparational task before SOL and modifying their teaching materials such as task types. As well as developing their use of technological and interactional competence. Based on these conclusions' education organisations should arrange workshops for teachers to develop their use of Zoom for teaching. Teachers should also consider adopting reflective practices with other teachers to share strategies that have or have not worked for them. As well as listening to learners' point of view as part of their reflective practice process. The implications of findings of this study could be useful for future research, as they contribute to the literature by exploring learners' interaction in breakout rooms during SOL. Walsh [9] highlights the importance of reflective practice for teachers, which the findings of this research also do.

7. Limitations of the study and suggestions for further research

There are few limitations of this study. The students' sample that has participated in this study were only from applied linguistics and TESOL course at Newcastle university, therefore the results of this study are not generalised on all international students studying their postgraduate on Zoom. The observation data obtained was only from one SOL, therefore other factors could have occurred in other breakout rooms from different SOL and different teachers. Future research could obtain more than one breakout room observation data from different SOL that s taught by different teachers to compare between different teachers practices effect and different teaching contexts.

Another limitation that could have affected the results of this study, is that learners in the breakout room were aware of being recorded. This could be an explanation of why some international students have not participated and turned their camera off during breakout rooms. Further research is needed to explore the effective task type for encouraging learners' interaction in SOL. This research has shown that groups in breakout rooms has an effect on learners' participation. Therefore, future research should explore in which ways should teachers group international students for breakout rooms interaction. As the previous literature

on grouping learners are all related to PiP classroom, which could give different results in VLE.

A. Appendices

1 Sometimes students in my group will mute themselves and turn off their camera so you don't really know if there's somebody, on the other side of the breakout room

2 In the real class the lecturer is around you and observing you so you do feel the need of saying something so the participation wasn't really that good from all the students, when we were having zoom lessons or zoom discussions.

3 "one thing I want to add to my experience is, that sometimes teachers just jump into your breakout room and sometimes they will disturb very intense conversation by just entering the room."

4 "I felt forced to do the preparation before the class, so I can get more involved, but in other classes there were no preparation deadline tasks."

5 "Teachers need give them the instruction, more specifically and clearly, so they would know what to do at the breakout room and they would get more involved so that's my suggestion yeah."

6 "The anxiety is there, people think, maybe their English is not good enough. And if you have a person who is a native speaker of English in the breakout room and that kind of doubles up."

1 "I did start monitoring at the beginning and I found it really difficult to do what I would do in a classroom which is unobtrusively walk around and peek at what students are doing from behind, but in breakout rooms I had to stop monitoring, because I found that as soon as I went in. It went silent. But I asked students to use the request button if they need help"

2 "learners having cameras off and muted mics and not speaking, kind of pushes us to really redefine what we do, the way we do it, I mean nobody wants to give a lecture into outer space. So, we need to create opportunities for students, where they don't just need to be passive listeners but rather to get them involved in what you're doing, and even if it's a lecture that we shouldn't see it as being a monologue from me to you."

3 "We set prep work, so the homework is preparing for the next day's lesson and then the lesson on zoom is used as a space to explore the information that they've learned as prep and I do think it yields better breakout room responses, or better teaching in general, better learning online in general

4 "They didn't have the same opportunities to make friends and to kind of build a sense of community "

5 "we used a shared document so one drive So everybody when they go into the breakout rooms, I can see exactly what they're doing.."

6 "Because this is all quite new to all of us, including our students, we probably need to manage expectations, a little bit and perhaps set up a first meet up, you would say you know, this is what I expect you to do when we're doing breakout group and when we're working together as a whole group."

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Chapter 16

Do Computer Science Students Always Talk about Computer and Technology in English Class?: Exploring the Reflection of Mind from the Field of Study

Faridatun Nida

Abstract

What someone learns is something that makes them curious. Curiosity builds interest and learning something based on interest is pleasant. Such feeling is necessary for teaching–learning activity to achieve the objectives of the lesson. Bringing to the context of teaching English as Foreign Language (EFL), a question is proposed. Do computer science students always talk about computers and technology even in English class? Based on the existing literature on English for Specific Purpose (ESP), EFL students will be given material lessons based on their field of study. But, are they happy with it? Are they not bored to talk about similar topics in every situation? Or should we make some changes to adjust the material of ESP to their interest? How about their need to learn English? This section will bring you to another view of understanding students' interests in the aim of preparing material lessons in English class. By combining it with psycholinguistics, it is expected that the discussion provides an understanding to renovate the objectives of the lesson as well as the material lesson in English class, especially for teaching EFL in higher education.

Keywords: lesson material, non-native English students, higher education, EFL teaching, psycholinguistics

1. Introduction

After graduating from senior high school, students who are disposed to continue their study in higher education should register to college or university and choose a study program to focus on. The variety of study programs offered by each university is not always similar. Nevertheless, the study program that is most attractive to the students can be predicted.

The development of technology as well as its usage requires workers to employ. Besides, the extensive spread of its users' needs well-trained technicians to handle the

problems [1]. This condition can be inferred to state the reason why computer science becomes one of the most wanted study programs.

The fact is that when students make a registration to a certain study program, they first need to follow some steps of selection. Hence, the announcement of the acceptance becomes the expected news to get. The question is: Do they always get accepted in a study program as they expect? How if they are not accepted into a study program that they are interested in?

Some students can continue their study in the program they have chosen after they get the acceptance letter. While the other who does not get it, by some considerations, can take another program. Taking such a solution does not mean that the students have an interest in it. It might not belong to their interest. If they do so, it possibly affects their study during semesters [2]. Students that belong to their interest tend to have more spirit and motivation in accomplishing their study. They even tend to get a better score. On the other hand, students with lack of interest tend to have less motivation and spirit so that they should have more effort to accomplish their studies. This condition creates so many bridges to learn from any viewpoint.

Other than the issue of interest, the term "wrong major student" is created to refer to the students who study in a certain program as they are not expected [3, 4]. This is interesting. Differing from their interest, wrong major students tend to think that they should not have to take the course. But, should they move to another study program and repeat their registration and education from the first semester? The funny fact is that some experts come from the assumption that they belong to the wrong major students, but they continuously study about the things that actually they have no interest in. Some people will believe it is fate and others just call it luck.

Getting awareness of the issue makes a consideration of the topic that the students will choose while they have to talk about something. To the subject that becomes their concern, the topic must be related to that study program [5, 6]. What if the subject is supplementary that might possibly not have an obligation to talk about a similar topic as the concern of a study program, like English?

Let me share an experience of teaching English. The material that is already arranged is about general English. As the junior lecturer, at that time, I just followed the material. The students look bored. Moreover, the material is about writing. Trying to give a response and solution to the condition, I give the students a chance to write something based on their interests. They can decide the topic of their writing. The result is that they are happy to go with the direction and finish their work with a smile on their face. They are excited to choose the topic they want to write about. They also become more aware to consider what they should do. The direction is not only about asking them to write a paragraph but with certain instructions, like making a good flow of information by following some steps and considering the coherency and the cohesion of the sentences within a paragraph. They pay attention to it. And the result is amusing. Almost all of them follow the pattern of paragraphs as instructed. The flow of information is also clear enough to be understood. This is interesting because a little change can make a big impact. It can be said that the lecture is successful in delivering the material and the students are successful in accepting the material. Their work shows that the students can achieve their goals in English class, especially in writing. It is also beneficial to be used in another class when they are asked to write something.

When there is an expression that *experience is the best teacher in life*, it is true. Since then, I think of making some renewal to the material lesson, the task, and the activity during the class. Trying to understand the students' responses takes me back to the essentiality of English classes for non-native speakers. Should they be given the topics

based on their field of study? Should they always talk about it? However, material lessons can be one of the ways that it possibly makes their moods change and it is helpful to achieve the goal of teaching-learning activity.

2. The application of English learning for non-native students

English in general context is seen as a language that is known by people from all around the world and becomes the number one choice of language to communicate with people from other countries. Hence, English language users are spread across the nation. Some countries make it the primary language, others make it a secondary and the rest make it a foreign language. Whatever the usage, English has a standard structure and rules that should be understood by the user, whether it is a native or non-native language.

In a country like Indonesia where the use of English is only for a certain context, English has become a subject of the lesson in school, starting from kindergarten to higher education. The learning material is determined differently for each level of education. Material delivered to the students of kindergarten is generally about the study of recognizing vocabulary, while elementary school to senior high school in normal conditions, tends to study sentence and grammar. Nevertheless, higher education has no identical material. Some of them organize the material into general English and others make it more specific to English for Specific Purposes (ESP) [7].

Besides, the material can also be differentiated by the facilities and the environment. The facilities of English learning can refer to the teachers' or lectures' competence and other supporting environments. In the city of a developing or developed country, sometimes they have an international school. Seeing the result of students' skills, it is assumed that the curriculum for English lessons is different from the normal school. Students of international kindergarten have been able to master more vocabulary, have more proper pronunciation, and can speak in English even if their grammar is still incorrect or they still mixed their language with their first language [8, 9]. It is stupendous. Yet, the assumption is that they have their own standard while arranging the material lesson and they have their own method of learning. Moreover, their environment also supports their learning so that the students do not only speak in English when they are in school but also outside the school. Seeing the facts, it means that schools with good facilities for English learning will provide better materials and methods than schools with no facilities.

Let us see a normal school in a non-native English-speaking country. The area of school can define their frequency and familiarity with the English Language. Schools in town or village may not be similar to the schools in the city. Students in a city tend to be more fluent in speaking English since they are more affected by westernization. Meanwhile, students in town or village rarely use English and it makes them not as skilled as students in the city [10].

Take an example of the students who live in a small town of Center Java, namely Purwokerto, where English is rarely used as a communication language [11]. High schools in that town do not always have proper facilities for students to learn English. Only those whose family belongs to the upper class have facilities to join a paid English course beyond their formal school. There are also students with a high interest in English who try to learn autodidact by watching the video on YouTube. This condition makes not all of the students have good skills in using the English language. The discrepancy is felt when students from different high schools join together at one

university. English classes have to organize and apply the curriculum and lesson material that is able to reach all of the students with any level of mastering English.

Based on the author's experience of teaching the ESP in higher education for economic study programs in a college located in the village of Center Java, Kemranjen, the material of the lesson discusses identical and specific terminologies in that field. The study of English focuses on the application of economic terminologies to a sentence, matching the answer choices to the blank space of a sentence. Nevertheless, the activity seems not to correspond with the student's condition. Their English skills of listening, reading, writing, and speaking are still basic. It makes the lecturer initiative to teach them another thing beyond the material. If a need analysis is conducted, they might tend to require the basic material lesson, like making sentences, learning pronunciation, and listening. The understanding of the meaning of certain terminologies is important but it can be obtained in other subjects that are specifically provided to deliver in their study program. They can find the equivalence of certain terms by checking the dictionary since their module is dominantly written in Indonesian. Hence, the discussion about a term and its position in a sentence become less unnecessary since their basic skill like arranging the sentence in English is still far from perfect. This condition shows that ESP becomes imprecise to be applied for students with a level of basic English when the definition suggests ESP be implemented for students in an advanced level of English mastery. Considering the condition gives an assumption that education level seems cannot always determine the student's level of mastering English skills. Furthermore, the uniformity of lesson material can be a matter. Their understanding of certain material could be different. As an example, students whose education in high school is familiar with the term "verb 3" will be confused if in their higher education, the lecturer mentions it as verb-ed. It seems that the terminology refers to the basics, but the different naming of it possibly makes the students feel confused. It might be solved after several meetings, they become familiar with the terms. Meanwhile, the objective of the lesson is similar, that is to make the students acknowledge the variety of verb formation.

Another example of ESP application in higher education based on the author's experience happens to communication science students. In their material lesson, the topic can be categorized into specific knowledge that is in line with the study program. The student's skill varies from basic to excellent. For students whose English skill is good, English class seems meaningless. One day in a discussion session, when the students are given a question about their expectations of joining English class, a student with good skill in English stated that she does not have any expectations. She might realize that their classmate has a different level of English mastery, whereas the lesson material given should reach all of the levels by having an English skill that is better than the other students, she feels that she is dominant and has been capable of it. Moreover, she joins a paid English course that concerns a specific skill, that is speaking class in one reputable course institute. The purpose of the lesson activity seems focused and she understands what she should reach by joining the course. It affects her thought to think of an English class on campus as a subject to pass the semester. The lesson in English is seen containing instructions to do something and after accomplishing it, she thinks that her responsibility is over. The lesson is not really beneficial for them. It is regarded as another form of getting knowledge but does not really affect their improvement in English skills. On the other hand, students with basic English skills tend to make similar mistakes without any improvement. Similar to the good one, they think that joining the class is a requirement to pass the semester. They seem to lack the motivation to improve their English skills. They try to

do any task during the class with the help of the internet using software like Google. It is good for them to utilize the technology but it makes them have a high dependency and less thinking. Actually, it unconsciously happens but if the condition continuously happens, it can harm their brain and their skill in the future, whether for work or to survive in their life. Only a few students with high interest have a curiosity for the lesson. They pay attention to the material and can memorize the important knowledge that is obtained during a semester joining English class to be applied beyond the class.

In another context, the experience comes from the English class for higher education students majoring in computer science. Material of the lesson in the class is similar to the material in previous education, that is junior or senior high school. It talks about the types of English, part of speech, and grammar. The student seems like doing the assignment as examples are given but they look bored and not interested in joining the class. At the end of the semester, when the course is accomplished, there is no specific destination to go. The measurement of success in English class is only based on the score they achieve but the application to solve their problem in real life seems insignificant. Because of this, there is a need to make some changes.

In another semester, the curriculum is updated but still not based on the study program nor ESP for the students of computer science. It is arranged to be a general skill required for students in higher education that is to read and write an English journal article. In other words, the purpose of learning is to make the students have a skill in writing and reading an English journal article. As the purpose stated, the main material of the lesson is not about the terminologies in computers but the English journal article on the topic of computer and technology. As *for killing two birds with one stone*, using that material, it is expected that the students not only concern themselves with the terminology commonly used in the field of computer but they also study about the sentence pattern, both generally to deliver information and specifically to put the terminologies in the right place of a sentence. The students unconsciously learn more than one thing through one activity. The repetition of its activity through several meetings is helpful since the students do not have to study about grammar with the complicated rules, formula, and term as they dislike it, but they can get the benefit that is similar to the benefits when they learn about the sentence and its grammar of certain terminologies. It is also considerably effective because it corresponds to the characteristics of the students in this era [12]. Their generation seems identical with simple but instantly worked. At the end of the class, the students at least have a skill that can be used to be applied in another subject since an article journal is something that the student needs as references to enhance their knowledge and to write texts like a report or thesis.

The experience of teaching ESP in several fields of study provokes an initiative that the consideration during arranging the curriculum and the lesson material might be based on the purpose of English learning.

3. Exploring students' competence and interest through English class

Exploration of English teaching and learning, especially for non-natives English students is limitless in any area. Various theorists of education methods proposed by experts from the education field give choices to believe and suppose. Some lecturers take it for granted and apply it in their class. The other examines the theories by conducting research in order to find the most appropriate method of teaching

English. Besides, some researchers make an exploration through a need analysis to get consideration in organizing and arranging the material lesson of English class for non-native English students. A curiosity leads to the question of whether is there any other method to get consideration while arranging lesson material? Let us see the facts and get the answer as your consideration to make some decision.

As it has been mentioned before, there is a need for analysis that the result of it is used as the consideration to create and arrange the material lessons based on the students' needs. It is commonly executed by distributing questionnaires to the students to make sure they match the material and the participants. The questions are directly stated and sometimes they also provide some choices as the answer. If they do not choose A, they will choose B, and vice versa. The results seem under control but they cannot be said to be ineffective. The unclear limitation and regulation of applying ESP at the level of education also make it uneasy to be implemented. Meanwhile, plenteous research with other approach and methods is conducted. Reviewing the literature is always the thing to involve in their research. Unfortunately, the result does not really give the renewal since the research uses similar theory for similar objects. To give it a solution, enhancement of techniques to get consideration while arranging the material lesson is flowering. Innovation is needed by making collaboration across the study.

The recent literature states that the approach to learning can be viewed from the students' states of mind [13]. Their psychological condition can support their ability to reach success in learning. Starting from the initial experience as mentioned in Section 1 to the teaching experience in Section 2, it arouses curiosity to answer the questions of what is on computer science students' minds? What do students think while joining English class? Do the students of computer science always think about computers? Or do they have another topic on their mind?

Reviewing the literature from psycholinguistics and research carried out by Nida [14], it is proven that students do not always talk about computers. Although their everyday class dominantly talks about it, their interest in something can make it more memorable and it can change their moods during English learning as stated in the previous section. It is also seen as helpful to bring learning into the successfulness. Another research conducted by Nida found that the students of computer science tend to talk about the not-too-technical terminologies of computers when they are in a class where the subject is not concerned with computers. It can be seen from the result of the research when the students who join English class are instructed to mention the technical terminology in the field of computers. Their work shows that they tend to mention the terms that are familiar to the common users of computers and technology. Once again, their work shows what is memorable to them. These findings can be a consideration to organize the material lesson as well as help the lecture to determine the method of English learning for non-native speakers.

4. The purpose of English learning for non-native students in higher education

Whatever study program the student chooses in their university or college, there is an English subject that belongs to the list of lessons they have to take. According to the previous explanation about the application of ESP in English learning that does not always conform to the student's needs and the fact that the teacher or lecturer wants to make the implementation of ESP simpler by focusing more on the learning activity and arranging the lesson with the standard that they make by themselves, there is

a consideration of understanding the objective of the lesson. The consideration can come from the area of the institution, the level of students' skill in English, and the environment.

Positioning the viewpoints of the students as participants, a clearer illustration might be gotten. When we think about one of the fields, that is computer science, the assumption is that students of computer science must have an interest in its field. This is because it becomes the common reason for them to choose it as their study concern in higher education. On the other hand, the previous subsection describes the condition with the terms of wrong major students and there are students who come only to finish their education and get their bachelor's degree without any interest in computer science. It means that not all of them must have an interest in the topic of computers. They might not think of computers all the time, including the time when they join English class. They tend to have the mindset that by joining English class, they learn about English, how to speak in English, how to write and read English text, and what the English speaker says. Their needs tend to lie in improving their skill in the English language for general context. Understanding the facts of it and terms of ESP for the context of EFL, it is possible to give a reformation to the purpose of English class.

Besides, outlining the condition of non-native students in English class makes a presupposition that English class can be focused to another specific purpose, like academics, even for the students who study computer science. Apart from considering competence, the needs of students in higher education are broader. English lessons that they have gotten in their previous education might not really be enough to make them have an understanding of reading English journal articles or writing it. Another lecturer also gives suggestions to English material lessons for delivering the material of reading and writing journal articles. Research carried out by Huzniati proves that students of computer science expect that English class can give them skills that are needed for their work, like speaking and reading [15]. However, the experience stated in the previous subsection gives the author's conclusion that the purpose of the class should be to point to the more specific skill that is useful to be applied to another subject, and the way to achieve it is by making the students happy [16, 17]. The lecture can create a fun class by arranging the material based on their interest.

5. Conclusions

Talking about the reflection of the field of study, the discussion in this chapter proves whatever the study chosen by the students in their higher education level does not mean that they always talk about it. They can talk about other things based on their interest. And understanding the topics that lie on their mind is beneficial to help the lecturer achieve success in learning.

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Section 4

Why Assessment?

Principalship Educational Policy Challenges in the Management of a Turbulent School Environment

Bongani Sibusiso Mchunu, Mzomuhle Justice Zondi and Wilson Myboy Nzimande

Abstract

The chapter reports on the findings of a small-scale mixed-method study conducted amongst thirty sampled school principals. In the study, the principals share their challenges and achievements in implementing COVID-19 responsive policies in a turbulent school environment threatened by the pandemic. We sought to understand the experiences of principals in managing the implementation of policies necessary to make situational analyses in navigating the unstable academic year. We used the concepts of geographies of place and situational leadership to understand first, how principals managed to implement the national and provincial policies to ensure learners share available learning space without physical contact. Second, it was to understand the implementation of curriculum recovery programmes meant to mitigate against lost teaching time. Both quantitative and qualitative techniques were used to generate data to answer research questions that underpinned the study. The findings suggest that principals faced challenges in implementing the policies in areas of phasing in all grades, ensuring continuity of teaching and learning due to intermittent outbreaks of COVID-19 infections. This resulted in the loss of schooling time because of temporary closures of schools and the absence of teachers which impacted negatively on curriculum delivery.

Keywords: geographies of place, situational leadership, turbulent, social distancing, structural inequalities

1. Introduction

The sudden outbreak of COVID-19 that led to protracted school closures severely affected the South African education system. Poor infrastructure and the lack of disaster management policies and structures for managing the crisis exacerbated the turmoil that prevailed at both the education policy domain and the school level. There was a policy disjuncture between what was portrayed as the situation that existed at the schools by the Joint Teacher Unions, a collaboration of different teacher unions, and what the districts were reporting to the national and provincial departments. The principals were under pressure from both the national and provincial education departments to implement the COVID-19 response guidelines in a complex and

turbulent environment. As leaders in schools during this crisis, principals were relied upon by both the national and provincial education departments keen on saving the academic year. Hence, quick-fix policy responses and decisions caused tensions between the policymakers at the national level and Joint Teacher Unions [1].

2. Contextual background

When the Department of Basic Education (DBE) Minister announced the reopening of the education sector she emphasised that the decision resulted from scientific deliberations where a phased approach had been recommended to manage the risks of COVID-19 infection. Office-based staff had to return to work on 4 May 2020 followed by the School Management Teams (SMTs) on 11 May. Next was the teaching staff on May 18. Grades 7 and 12 learners later followed on 8 June 2020 [2]. The DBE wanted to start with these grades because of their maturity as senior learners at the exit points of the junior and the senior grades, respectively. With their maturity, they would assist to orientate the younger learners who would follow later thus limiting the risks of infection [3]. The reopening of schools in the middle of the COVID-19 pandemic in South Africa presented school principals with a predicament of ensuring that teaching and learning occurred despite the difficult circumstances posed by restrictions in response to the raging pandemic.

This chapter presents the findings of a small-scale study that involved the use of both quantitative and qualitative methods to generate data from sampled principals of schools under UMgungundlovu District, in the province of KwaZulu-Natal, South Africa. The chapter sought to elicit insights from the experiences of principals in implementing the COVID-19 policy guidelines for managing a turbulent and crisis-driven school environment. The chapter further seeks to understand, from the principals' experiences, how they handled challenges and achievements in implementing COVID-19 policy guidelines in a disruptive and unstable school environment. To achieve this objective, the researchers set the following two guiding questions:

i. How did the principals implement policy guidelines of the DBE to manage COVID-19 in schools?

ii. What were the principals' challenges and achievements in implementing the policy Guidelines?

With 487 public schools under its jurisdiction UMgungundlovu Education District, operated under these challenging circumstances. The schools are spread throughout this big district serving rural, urban, township and farming communities from different ethnic groups and socio-economic backgrounds. The schools are grouped into 17 circuits (circuits being a demarcated group of schools under the management of a circuit manager). Circuits contain a varying number of schools ranging between 23 and 34 schools. The unprecedented challenges posed by COVID-19 in schools required leadership that understood the situation at hand and was capable of flexible decision-making to ensure teaching and learning in a turbulent environment. This study would enable the management of UMgungundlovu Education District to gain insight into the principals' leadership experiences within this environment.

3. Literature review: policy landscape for managing COVID-19 in schools

We reviewed the literature on the international trends of social distancing in education and the South African policy development landscape pertaining to the school context. Our review is organised into four broad themes. The first part portrays the relationship between social distancing and the risk-adjusted approach for the reopening of schools. The second part reviews the COVID-19 policy landscape as it applies to the complex and unstable school situation. The third focuses on the duties of COVID-19 Committees in schools, and the fourth highlights measures that are taken to prevent the spread of the pandemic within schools.

4. The DBE policy guidelines on the safe reopening of schools

The DBE under the guidance of the Department of Health (DoH) developed standard operating procedures (SOPs) to prepare all administrators on how to stop the spread, and manage COVID-19 cases within schools [2]. The SOPs explain the measures and protocols to be followed in the education sector to ensure safety against COVID-19 infections. Its main objective is to explain procedures to be followed by office managers, and school leadership in case there is a confirmed or suspected incident of COVID-19 infection in the work or school space [2]. These guidelines equip all leaders with information on how to act rationally and calmly when handling emerging cases. The guidelines also explain important terms used in the COVID-19 context, for instance, exposure levels, which explain how much contact a suspected individual has had with one whose infection has been confirmed by testing with another one who has been confirmed to have the infection and quarantine, which explains a period that one should spend in isolation from other people after testing or coming to contact with a confirmed case. This period had initially been put on 14 days but on 17 July 2020 the National Coronavirus Command Council (NCCC) reduced it to 10 days minimum following guidelines from the World Health Organisation (WHO).

4.1 Duties of COVID-19 committees at school

The guidelines position principals as compliance officers at schools, responsible to apply all prescribed COVID-19 measures. These include the creation of COVID-19 committees. Although the COVID-19 pandemic demands a task-oriented response from leadership, situational factors like the skills and maturity to manage certain responsibilities oblige principals to delegate duties in a people-oriented manner. This necessitates the understanding of the levels of competency team members possess to carry particular responsibilities [4, 5]. COVID-19 conditions presented novel challenges to all concerned at the school level. Relevant training on COVID-19 for committee members to gain knowledge and confidence needed to be ensured by the principal of the school.

Duties of the committees included a range of activities such as initiating COVID-19 awareness programmes for their schools and communities; erecting signs and posters educating the public about hands and respiratory cleanliness; preparing and maintaining hand washing stations containing soap and water, 5 m away from toilets and bathrooms; ensuring the availability of hand sanitisers with a 70% alcohol content at entrance points of classrooms, teacher staff rooms, reception and waiting areas, and

all offices; managing daily removal of garbage from the school; and ensuring that the school buildings are properly cleaned and disinfected as per the DBE regulations. These committees are also tasked with the preparation of well-ventilated and equipped rooms for isolation purposes. They are also responsible to ensure the observance of social distancing in all spaces of the school and to encourage learners, and staff to properly wear their face masks. Another important duty for the committee is to ensure that there is enough personal protective equipment (PPE), for the entire school community.

5. Conceptual framework

This research sought to examine the principals' experiences, challenges and achievements in the application of policy guidelines for managing and preventing the spread of COVID-19 infection in school premises. To achieve this objective, it is necessary to understand the type of leadership that principals needed to respond to the immediate demands of spatial organisation, policy adherence and management of the school. Therefore, we adopted two theoretical constructs to explain the kind of leadership, place and space in this context: geographies of place and situational leadership. This concept will explain how the learners are placed in classrooms in consideration of the social distancing measures. Second, we have considered situational leadership as the befitting perspective to understand how principals played their roles in implementing the COVID-19 policies in a turbulent and unpredictable environment. The two concepts are defined below.

5.1 Geographies of place: organisation of schooling spaces during COVID-19

The notion of geographies focuses on the observation, the study and the interpretation of people's lived experiences within their places. Place can be understood as a socially constructed space where people 'belong' and interact to share resources. Physical contact occurs easily amongst people within close geographic locations [6, 7]. Schooling communities exist within close proximity, hence [8] description of schools as 'contact zones'. Social distancing measures compelled schools to review their spatial settings to discourage the sharing of personal properties and enforce the wearing of face masks. The spatial manoeuver became important in the management of COVID-19 in places where teachers and learners have to coexist [9]. These new arrangements to influence behaviour within the school require the school leadership to respond with a clear awareness of the situation [9–11]. School leadership, especially principals, was expected to understand all the risks involved in dealing with a highly contagious disease in a space that is dominated by human contact. Managing COVID-19 demanded that principals perform different tasks that included communicating with different stakeholders such as parents, teachers, district officials and learner transport operators. Ensuring that all PPE for the school is available and monitoring human movement within the school was a huge responsibility. A task-oriented form of leadership was therefore required to successfully perform these tasks. To achieve this, principals had to delegate duties and manage personnel [2, 11, 12].

5.2 Situational leadership: responding to the COVID-19 crisis

South Africa took a 'risk-adjusted approach' when reopening schools under the prevalence of the epidemic. It was then necessary to understand the risks involved

and how to manage them [13]. According to Ref. [11], situational leadership is best suited for understanding the attended risks and for immediate decision-making. That requires sound awareness of the situation or crisis and a provision of a response that is clear, appropriate and effective. Situational leaders apply flexibility when they respond to the presented challenges. They prioritise the development of individual team members in the workplace. Situational leaders may be task-oriented where they are directly involved by giving instructions and directives mostly to inexperienced individuals. On the other hand, they may play a supportive role especially with matured and experienced team members. It is expected that situational leaders respond to the situation appropriately and with integrity while respecting the structure and the culture of the organisation they represent. Having clarity of vision as to what needs to be attained within particular situations encourages situational leaders to devise innovative and adaptive strategies to achieve their goals [11, 12].

5.3 Methodology

The purpose of the study is to understand the experiences of principals in implementing COVID-19 policies in a school environment that is characterised by turbulence and unpredictability. Survey questionnaires which contained open-ended questions were distributed to the sampled 30 schools. A qualitative approach was used to solicit the views of principals on their experiences, challenges, successes and lessons learned in managing the policy implementation at the school.

5.4 Sampling strategy

Random stratified sampling was used to choose 30 schools representing all quintile rankings from all 17 circuits of UMgungundlovu District. Stratified random sampling is part of a larger family of non-probability sampling [14]. It ensures that different groups or segments of a population acquire sufficient representation [15]. In the context of this study, we sought to ensure balance amongst rural, urban and township schools that constitute the education district. From these intended groups, individual schools were randomly selected for the study. Random sampling ensures that everyone has equal opportunity of being selected for participation in the study [15].

5.5 Data collection and analysis

Hard copies of the questionnaires were sent to school principals after obtaining authorisation from the Head of Department (HOD) of the KwaZulu-Natal Department of Education and UMgungundlovu District Director. The principals completed the questionnaires and returned them to the researchers at the district office. A box had been prepared for this purpose. The study was qualitative in that it captured and interpreted the narratives of the individual principals who had been randomly identified. We used qualitative research content analysis which focused on the participants' responses to the questions. Key ideas were elicited from the responses, and thereafter, similar ideas were grouped together into themes [16].

5.6 Ethical issues

We observed all the necessary ethical considerations including seeking written permission from the HOD of the provincial Department of Education and the

District Director of UMgungundlovu to conduct the study. Consent letters from these authorities accompanied the questionnaires to participating principals who had been requested to sign their own letters of consent to participate in the study. Schools were allocated pseudonyms to conceal their identities.

6. Presentation of findings

In presenting the findings, we first outline what emerged from the questionnaires which formed a quantitative dimension of the study, and the narratives focused on the experiences, challenges and achievements in policy implementation. The data are presented under three broad themes:

Principals' experiences with implementing social distancing principles; the challenges in managing and delivering the curriculum during the COVID-19 pandemic and the principals' areas of achievement in policy implementation.

6.1 Principals' experiences in implementing social distancing principles

The findings indicate that the principals' experiences were largely characterised by difficulties relating to tasks that they had to perform and manage while implementing the policy. First, they had to implement social distancing within the limited available classroom space where learning had to occur with no physical or close contact between teachers and learners. Second, they were mandated to deliver and manage the curriculum in a turbulent and unpredictable school environment. Third, they were to supervise the execution of daily routine tasks of the screening of teachers and learners and sanitisation to ensure compliance with COVID-19 policies. Fourth, they were tasked with implementing curriculum recovery programmes in an environment characterised by anxiety and fear.

Given that principals' experiences were characterised by difficulties and challenges, the discussion here focuses on that particular theme. Since schools are contact zones with fixed boundaries [8]. Principals had a duty of extending available space to make possible the prescribed distance of 1–1.5 metres between the learners' seats in a classroom. Different models of attendance were available to choose from. Schools chose and applied models in a manner that would meet their individual requirements. Out of the 25 schools in this study, 23 opted for the alternate-day approach. This was done in different ways with grades, in some instances, changing days to attend school, like in the case of *Tholulwazi* Primary where 'different grades attend on different dates', and *Masakhane* Primary where 'Grade R and Grade 1 attended on different days and Grade 5 and Grade 6 also come to school on different days'. This arrangement also assisted schools like *Busisiwe* Primary where 'Grade 2, Grade 3 and also Grades 5 and 6 are using one classroom due to shortage of space'. In other instances, a class of learners was divided into two groups that come to school on a rotational bases skipping days, as was the case with *Zanokuhle* and *Thokoza* Primary schools, In *Thokoza* 'each class is divided into two groups and those two groups alternate daily'. Many other schools did the same. Some used a bi-weekly approach where different grades alternated on a weekly rotational basis.

Other schools such as *Graceland* Combined used the alternate day model with special internal arrangements where certain grades attended full time: 'Grade 7 and

Grade 12 attend classes on [a] daily basis and these other grades come to school on two days each'. *Madiba* Primary, starting from Grade R to Grade 7 applied the same model as their 'Grade Rs and Grade 7s come daily and the remaining grades alternate days'. *Goodness* Primary applied mixed models by using both bi-weekly and alternate days approach 'because of the huge number of learners': 'Some grades are going to alternate on [a] weekly basis and others on [a] daily rotation basis'.

A well-resourced school like *Thokozani* Primary with a large campus and available space to manoeuver maintained the status quo as it 'applied for and received deviation from protocol. The whole school came back on the 6th of July 2020'. *Moya*, primary a small yet similarly well-resourced school could also afford to maintain the status quo.

Mandla intermediate, which had chosen an alternate day model, was forced to revert back to having all learners attending at the same time as the school experienced challenges with learner transport vehicle owners who were 'not prepared to transport few learners'. The principal, however, did not explain how the school managed social distancing under these circumstances. *Uthando* Primary had a similar experience where '*le*arner transport is not keen on bringing learners [to school] if the number is too little'. But the school still persevered with its alternate day model with Grade R and Grade 1 attending daily while 'Grade 4, Grade 6, and Grades 5 and 7 alternate days'.

These models of social distancing presented both advantages and disadvantages to the schools. Some of the advantages included the realisation of 'effective teaching and learning due to manageable class sizes', as *Benzakahle* Primary Principal indicated. There were however a number of challenges. For instance, the principal of *Kingdom* Combined complained that 'learners did not do the work allocated to them in the week at home'. *Esethu* Primary and *Dumisani* Primary Principals discovered that 'other learners confused the days that they are supposed to come to school on or [just] absent themselves'. Some other schools experienced similar challenges.

Inhlanhla Primary Principal noticed that the curriculum was 'moving at a slower pace since learners are not seen every day' and that 'most assessment tasks have to be done at home without teacher supervision'. *Bhekathina* Primary Principal realised that due to skipping days, learners struggle 'to link the concepts they studied on the previous days'. These challenges constitute the disadvantages of using rotational models of attendance.

6.2 Provision of isolation rooms

The policy guidelines compelled schools to have an isolation room or sick room to accommodate individuals with suspected infections. Specific requirements for setting up an isolation room had been laid out in the policy, e.g. the room had to be situated at the entrance of the school with separate toilet facilities [2]. Some of these requirements could not be met by disadvantaged schools' makeshift isolation rooms despite the innovative arrangements applied by the principals to convert available space. Identified spaces included offices at *uMthetho, Moya* and *Busisiwe* primary schools and a library, at *Emfundweni* Primary. Other spaces were unused classrooms as in the case of *Thandokuhle* Primary and *Graceland*. One for isolation, this being *Uthando* Primary even made use of an on-site security guard's house. This made some of the rooms unsuitable for the original purpose. *Senzeni* Primary mentioned that they did not have an isolation room and no provision was made for this lack.

6.3 Impact of COVID-19 on the schools' fundraising efforts

To keep the spaces safe from infections, schools had to be fumigated every day when the learners left the premises [2]. Subsequently, renting out of school spaces to the public to use for various functions could no longer happen as explained in KZN Circular 41 of 2020. This resulted in the loss of revenue that schools generated from these fundraising efforts. Mostly, the under-resourced schools were negatively affected by this arrangement. *Othandweni* Primary Principal lamented that this 'had a huge negative impact; the school has a tuck shop which it uses for income. A lot of fundraising activities were compromised'. *Thethani* Combined Principal regretted that the new arrangement affected the school 'negatively because the school hall was used as a wedding venue previously'. *Umthetho* Primary Principal complained that the new arrangement 'has affected us negatively since there was a church that was using a classroom on Sundays. They have now stopped paying rent'. *Inhlanhla* Primary Principal bemoaned the fact that the 'income received from rental of classrooms is now nil'. Lethiwe Principal even stipulated the amount lost when she said that there has been 'no income for rental from March – loss of R12000'.

6.4 Challenges of curriculum delivery and management during the pandemic

The presented data show how difficult it was for principals to cope in managing the delivery of the school curriculum during the COVID-19 pandemic. Teaching and learning were disrupted due to COVID-19 infections. **Table 1** depicts the combined statistics of cases of infection to both teachers and learners, with the quarantine of teachers and the closing of schools from June when the schools reopened to October when this study was conducted. This depiction is necessary as it reveals the amount of teaching and learning time lost to the pandemic within a short time.

Table 1 highlights that whilst the principals adhered to policy guidelines of screening people, sending them to quarantine and closing schools for decontamination, they were being robbed of important assets for curriculum delivery: time and personnel in the form of teachers, learners and days lost [2, 17]. In total, 17 teachers from 12 schools went into isolation and/or quarantine for a period of about 10 days. This was not the only dilemma that principals faced as there were other cases of absenteeism, like family responsibility leave, that added to the challenges. The most serious challenge came from the absence of teachers who had to be away from school as per the Education Labour Relations Council (ELRC) Agreement 1 of 2020. Under this agreement, the concession was made for teachers with high-risk comorbidities and those who are over 60 years of age to work from home while the country was on Alert Levels 3 and 2 of the state of disaster [18].

The principals complained that the teachers who remained at home on concession were not substituted. *Thandokuhle* Primary Principal moaned that 'for three months, since June, the teacher who applied for comorbidity has been absent and her

Schools affected by COVID-19	Number of affected learners	Number of affected teachers	Teachers in quarantine	Days schools closed
12 out of 30	17	17	13	31

Table 1.
COVID-19 cases and teaching time lost.

	Levels of confidence					
	Very high	High	Moderate	Low	Very low	Unsure
Completing tasks	1	5	4	—	3	17
Curriculum recovery programmes	5	—	6	1	1	17
Assessment tasks completed	4	9	—	1	—	17

Table 2.
Levels of confidence in curriculum recovery programmes.

subjects have not been taught due to shortage of staff'. Othandweni Primary principal stressed that the 'absence of educators has a huge negative impact on subjects being taught as learners lost learning time'. Zwelonke Primary Principal revealed that 'teachers who attend school regularly are being burdened with relief [duties]' which makes 'frustration levels high amongst staff due to continuous changing of subjects to teach'. To recover the lost time some schools, like Lethiwe, arranged Saturday and morning classes with teachers for higher grades. Others like Bongisizwe, arranged for afternoon classes. For Esethu Primary, the impact left by the absence of teachers was 'addressed by requesting teachers to draft a catch-up plan upon return to school'. Goodness Primary applied a similar strategy.

Table 2 shows the varying levels of confidence amongst the schools in the completion of assigned tasks, and their comparison with the implementation of curriculum recovery programmes and completion of assessment tasks. The findings show the negative impact of the turbulent schooling year that principals had to contend with. The Policy Guidelines made efforts at trimming the tasks, yet the situation looked bleak as schools lost days due to sudden outbreaks of the virus and the subsequent enforced quarantine periods.

Furthermore, **Table 2** shows 17 principals who were unsure of their stand as far as their capacity to manage the completion of the assigned tasks, curriculum recovery programmes and assessments tasks. What can be read from the above is the level of hopelessness that prevailed as principals were only capable of managing what was within their reach.

6.5 Areas of achievements in policy implementation

This section looks at the duties that were performed by the allocated staff and the manner in which the principals managed these duties. Principals showed an element of success in managing the daily routine tasks through the allocated personnel. Principals had to provide immediate task-oriented leadership to prepare and make schools ready to prevent the spread of infection by applying the policy guidelines [2, 11] The first priority was to set up COVID-19 Committees comprising staff members and to provide relevant training for them. This would then be followed by delegating duties as prescribed by the policy guidelines. Most of the tasks were, however, performed by personnel other than teachers. These were employed and trained specially to execute these special tasks. Nonetheless, it was the duty of the principal to monitor the performance of these duties. The table below indicates the levels of performance as observed by principals.

	Levels of confidence					
	Very high	**High**	**Moderate**	**Low**	**Very low**	**Unsure**
Screening of learners	13	12	4	—	1	
Screening of teachers	14	13	2	1	—	
Sanitisation of learners at entry points	15	12	3	—	—	
Cleaning and sanitisation of classrooms	10	16	4	—	—	
Handling of food by food handlers	12	12	3	1	—	2

Table 3.
Level of confidence with performance on COVID-19 activities.

Table 3 indicates that the principals observed very high or high levels of performance in the execution of duties allocated to various personnel except for a few schools whose performance was low or very low.

Procedures that needed to be followed with great accuracy included how to isolate individuals suspected of infection, notification of relevant authorities and closing down of schools for decontamination. Out of the 12 schools that had to deal with reported positive cases, principals seemed to have followed protocol and handled cases in the best way that protected the schooling community.

Lethiwe Primary had a case with a learner and later a teacher. The learner was 'placed in [an] isolation room' while the principal called the parent—'fetched by a parent'. The teacher was 'asked to get immediate medical help'. The principal contacted the Circuit Manager and 'phoned the nurse'. The school 'followed directives from [the] Health Department' and the school closed for 3 days to decontaminate. *Bongisizwe* also had multiple cases from learners at different times. The principal 'contacted [the] parent to collect [the child] immediately' and 'phoned the Circuit Manager, [and] health [officials]' and notified 'school staff'. 'The school closed for 3 days'. With a case in Grade 12, only the affected grade was closed. All other schools that experienced cases followed similar procedures.

That protocol was followed by principals may also be supported by data in **Tables 1** and **3**. **Table 1** depicts the number of cases the schools experienced, the number of learners sent home and the number of teachers quarantined. **Table 3** illustrates the principals' levels of confidence related to the performance of the activities used as barriers to prevent the virus from infecting many individuals.

7. Discussion of the findings

The findings point to the difficulties that were faced by principals to ensure continuous teaching and learning despite the spatial arrangement to try to equitably

share the classrooms through alternate attendance models. Principals had to make these compromises as a way of trying to balance the phasing in of the Grade R to Grade 6 learners in primary and Grades 8–11 learners in secondary level respectively. The other key finding from the data is that the limited infrastructure in under-resourced schools posed a risk of spreading the virus. These are contextual factors beyond the control of the principals. The policy guidelines compelled schools to have an isolation room or sick room for individuals with suspected infections. Of the schools participating in the study, it was only the well-resourced schools that had functional isolation rooms or sick rooms. Most under-resourced schools improvised by using available spaces for this purpose. Such adaptation is nevertheless in line with the argument that spaces may change depending on need, which means that certain activities and human conceptions determine the meanings and use of space [19, 20].

It is clear from the findings that teaching was negatively affected by the absence of teachers. Absent teachers leave behind gaps that may not be instantly or suitably filled by the principal. Added to that is the number of days in which some of the schools were closed for decontamination. Twelve schools closed for a combined total of 31 days ranging from 2 to 9 days for some of the schools. To respond to these challenges, some principals had mitigation strategies to make up for the lost time. The findings indicate the complexity of implementing the policy and the gaps that exist between the policy and the reality at the school level. The turbulent nature of the academic year indicated the level of challenges that principals faced in managing the implementation of the policy guidelines.

8. Conclusion

In this section, we draw conclusions and highlight implications for practice and research. As researchers, we acknowledge the fact that 30 out of 487 public schools is not a sufficiently large enough figure from which to draw general conclusions on how uMgungundlovu District managed the COVID-19 crisis in schools. We never-theless conclude that there was a disjuncture between policy and implementation. Policymakers seem to have assumed that schools had capacities to implement all the ideas contained in the guidelines. However, the contexts of the schools are never the same, as some lack the financial and other resources to fully implement COVID-19 safety protocols. A one-size-fits-all approach does not work in the educational con-text. Although principals may have been determined to implement all the guidelines, the complex, turbulent and unprecedented nature of the pandemic made it difficult to have fully functional schools.

Some principals managed to salvage teaching and learning despite the challenges of juggling different grades and classes to allow for the sharing of space. Some of the failures were beyond the principals' control, as teachers used their legal rights to apply for leave due to underlying comorbidities.

The added burden of managing the temporary closure of schools for decontamina-tion negatively affected the number of days for teaching and learning. All the efforts that were made for curriculum recovery programmes could not be successful in a learning situation filled with fear and anxiety caused by the new infections. The recovery programmes were more of a sacrifice by the teachers putting in extra hours of work. We conclude that situational leadership was applied in areas where principals had a level of control. Where there was not much to be done principals allowed the situation to unfold and dealt with those areas within their control to ensure that the

academic year was not totally lost. While this study aimed to understand the principals' experiences, it also revealed the capabilities and readiness of schools as they maintained a delicate balance between providing education and fighting the virus. Evidence on various models of social distancing applied in schools has proved to be challenging as revealed by the findings. Research is thus required to develop methods of creating space to avoid close contact in schools without disruptions to curriculum delivery, especially in under-resourced schools within the South African context.

Conflict of interest

The authors declare no conflict of interest.

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Chapter 18

What is the Point of Assessments?

Nenadi Adamu

Abstract

Assessments in higher education remain a crucial method in which the student's understanding and engagement with the course content continue to be measured. Evidence suggests that effective assessments must not only enhance the student's learning, but it must also encourage the students to be able to recognize quality as well as improve their performance for future tasks. There are those who argue that because of the emphasis given to employability in the delivery of higher education, assessments are becoming increasingly simplistic and less innovative, leading to a fast-paced approach to studying, thus limiting student imagination and engagement. This paper explores the rationale and strategy of assessing first year students on a BA Health and Social Care degree, with specific focus on a core 30 credit units by reflecting on the changes made to the unit and the written assessment and evaluating the outcome of the changes using student performance, ending with the question: "*What is the point of assessments?*"

Keywords: health and social care, higher education, assessments, teaching and learning, student engagement

1. Introduction

Assessments in higher education are used as a tool to test understanding as well as improve on student's abilities in future or similar tasks [1]. Gibbs et al. [2], however identify the fact that because of the changing nature of higher education and the shifting emphasis to employability, and a new approach to studying which is fast paced, assessments becoming less creative, raising the question of what we are assessing for. Villarroel et al. [3], use the phrase 'authentic assessments' to describe assessments that strike a balance between learning and the employability. They argue that assessments should essentially enhance employability by encouraging the students to develop the skills that are needed in employment post-graduation. Reimann and Khosronejad [4] rightly suggest that the designing of assessments need to be an authentic process, which effectively combines pedagogy and the rationality of the assessment.

1.1 Why do we assess?

"Assessment is a moral activity. What and how we choose to assess shows quite starkly what we value" (Knight, 1995, Cited in [5]).

The idea of Assessment for Learning' or AfL is featured quite heavily in the discourse on the rationale for assessments, as well as the teaching and learning strategies

in higher education (HE), and assessments are viewed fundamentally as a form of testing or evaluation [6, 7]. The Quality Assurance Agency (QAA) policies also highlight the importance given to assessments and this is evident in their argument that assessment strategies need to have a combination of challenge, opportunities for learning and growth [8].

The literature on assessments in HE acknowledges the shift in assessment strategies from the traditional mode of frequent assessments which have only been maintained by traditional institutions such as Cambridge, Oxford and the Open university to fewer assessments and less feedback being received by students. This raises the question of the purpose of assessments in the current climate and the impact on assessment strategies [6, 9, 10]. To answer the question on why we are assessing, it is important to look at who we are assessing, what we are assessing and the value of what we assess as seen in the outcome of our assessments.

1.2 Who are we assessing—the cohort

Jones and Wehlburg [11] highlight the need to be mindful of the need to have assessment tasks that inspire engagement from the students, and this is important as we consider who our students are. The student engagement is often influenced by a number of factors, but the diversity of the cohorts is a significant element that needs to be considered when evaluating why we assess. Northedge [12] argues that HE has seen a 'diversification of students and courses' over the years and our student cohorts now have diverse life experiences and multiple responsibilities in work, study and personal lives. Therefore, we must recognize that students a bring their lived experiences with them to their learning [13].

Looking more closely at the students we are assessing; it is important to start with the course they are studying. The Health and Social Care degree has remained a highly popular one with recruitment growing steadily across the industry over the last few years. The Health and Social Care Act 2012, and the 2022 Health and Care Act has led to increased investment in the Health and Social Care sectors, and this means more and more people have become interested in pursuing a qualification in Health and Social care with a view to securing employment in the field [14]. There is a greater awareness of the benefits the course offers, and the course fundamentally aligns with the vision of widening participation. Internal data suggests that many our students have limited access and opportunities due to a lack of social capital. As a course team with large numbers per cohort and a range of learning abilities, the challenge to design our assessments in a way that strikes a good balance across the range of abilities and levels of commitment remains evident. The course (Health and Social care) continues to increase in popularity due to the rising awareness of the opportunities in the health and social care industry as well as the opportunity to be a stepping-stone for applicants hoping for a career in the professional subjects such as nursing and social work.

This has led to the decision to revisit the current curriculum and assessment strategy to ensure that we are actively offering an inclusive practice in both teaching and more specifically in our assessments [15]. Having an inclusive practice as described by Leeds Beckett [16] will mean that as a course team, our assessments are designed to be meaningful (clear and unambiguous) and authentically contextualized. This is important because it is easy to get focused on comparing our strategies and methods with close competitors in an attempt to benchmark our provision, but the focus should arguably be on our students and their improving their overall learning experiences and outcomes.

1.3 What are we assessing? The assessment

Reimann and Khosronejad [4] rightly suggest that the designing of assessments need to be an authentic process, which effectively combines pedagogy and the rationality of the assessment. Bloxham and Cambell [17] emphasize the need for the academic community to engage in dialogue to ensure that assessments continue to meet the performance and quality standards and this evaluation provided an opportunity to do this. Having recognized that inclusivity is a crucial element in the designing and implementation of assessments in higher education [18]. Assessments must be designed to reflect the diverse range and ability of learners particularly in widening participation universities [19]. This is also reflected in the Quality Assurance Agency (QAA)'s quality code, which is clear about the need to ensure that all students are offered the same opportunities to be able to show evidence of their learning by the adoption of diverse strategies to demonstrate the achievement of learning outcomes. Evidence also shows that in order to achieve this, course teams must be creative and malleable in developing assessment strategies across courses and departments to ensure that students are offered a variety of methods and formats to give all the students a chance at succeeding [20].

The assessment was changed from a 1500-word report to a 2000-word portfolio which was deemed to be more inclusive and reflective of the student-centered approach. The portfolio required students to use different academic skills and draw from a range of sources to accommodate different strengths and in so doing, optimise their grade potential. Drawing on the Universal Design for Learning (UDL) guidelines in offering choice and autonomy [21] the students were given four broad topic areas to choose from thus engaging student interest and acknowledging the diverse learners as well as their individual backgrounds and employment routes. This was also to afford students the ability to link learning to employment particularly for those already in practice, but also for the students with no practical experience, as they
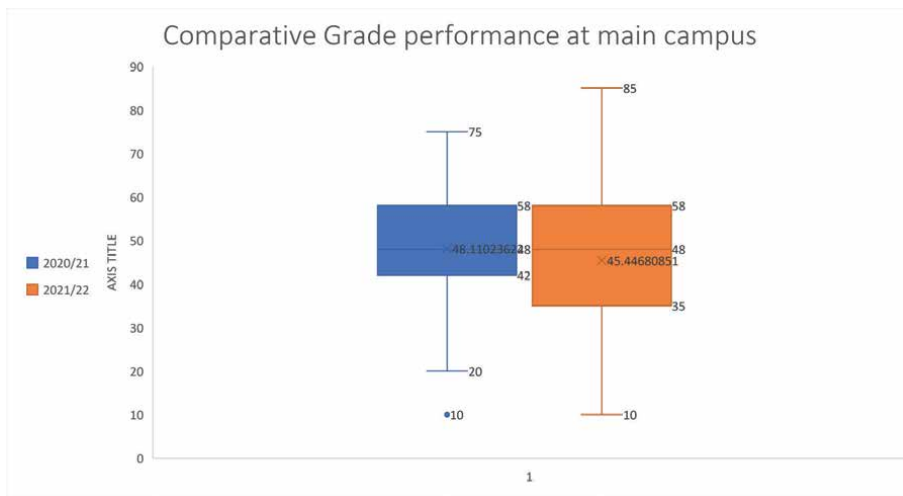

Figure 1.
This graph shows the grades for the previous academic year for the previous assessment and the lowest grade was 10 and highest 75. Fifty percent of the class scored between 42 and 58. With the new assessment, the highest grades went up the more student scoring in the upper quartile range but fail grades increases with average grade being 45.4 in 2021/2022 compared to 48.1 in 2020/2021. There were however more students in the 2020/2021 cohort (128) when compared to the 2021/202s2 (95 students) cohort which suggests that grades worsened overall.

would be able to learn from colleagues during workshops and assignment preparation sessions and in so doing, engage in community and collaboration [21].

1.4 The outcome

The assessment was undertaken by first year undergraduates in eight different sites inclusive of the main campus. Of the eight sites, four have been used for this analysis as there is available date to compare performances.

For the main campus, in the 2020/2021 academic year, the lowest grade on the unit was 10% and highest 75%. Half of the class scored between 42% and 58%. For the 2021/2022 academic year, the highest grades went up with more students scoring
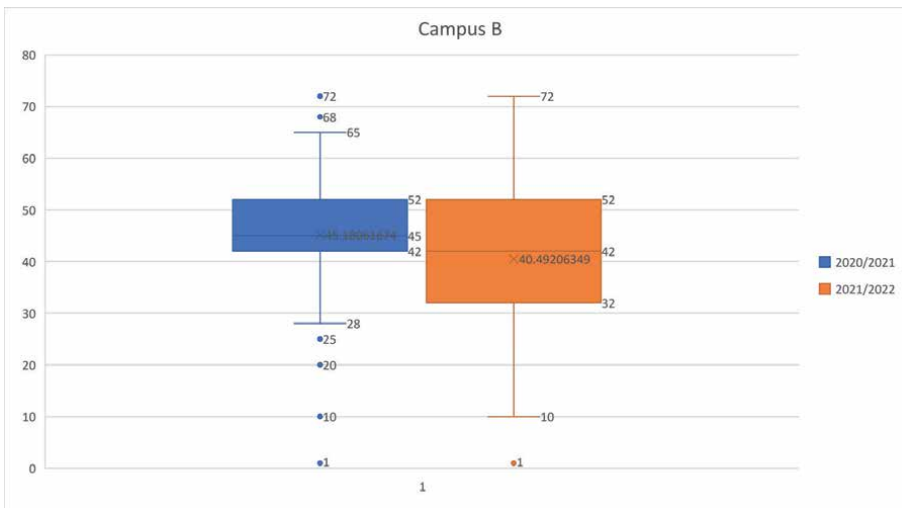
Figure 2.
This shows that there were similar issues at Campus A with more fails in 2021/2022 with the new assessment.
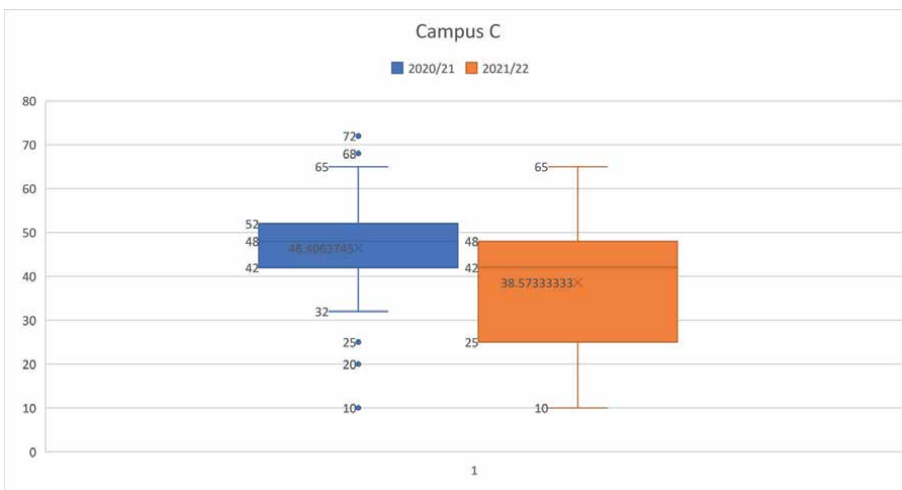
Figure 3.
Drop is highest grade in 2021/2022 with the new assessment and average grade worse that previous year.
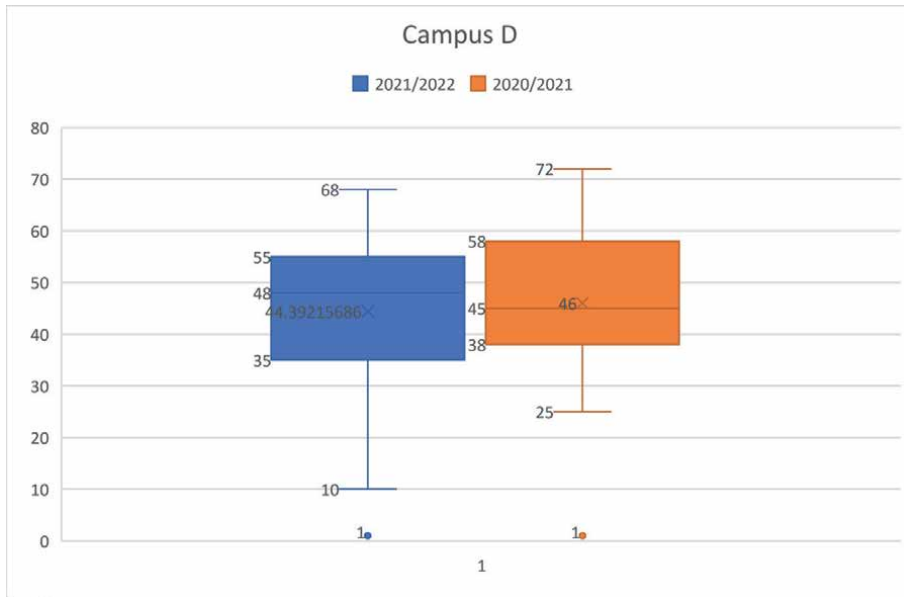
Figure 4.
Slight improvement observed from this cohort with a better performance on average.

in the upper quartile range, but fail grades increased. The average grade was 45.4 in 2021/2022 compared to 48.1 in 2020/2021. There were however more students in the 2020/2021 cohort (128) when compared to the 2021/202 cohort (95 students) which suggests that grades worsened overall (**Figure 1**).

Figures 2–4 show the comparison of the performance across the three other campuses. Overall, the patterns are similar to that of the main campus. Increased grade levels but more fails overall.

2. Observations

- It is important to see the grades compared together for the different academic years. The data shows that grades appear to have worsened in 2021/2022 taken at face value.

- Highest grades were better in 2021/2022 with the highest grade awarded being 85% and suggests that those who engaged and understood the assignment did better.

- Those graded 1–10 higher in 2021/2022. This could be because of a number of reasons which include academic offenses which are given 1% and secondly, those who used a topic of their own choice were automatically given 10%.

- Those graded 20%/−25% slightly higher in 2021/2022 and these were predominantly because of citing misleading references and non-UK based sources.

- There was increased ability to identify contract assignments due to the prescriptive nature of assessment and those suspected of this were invited to a viva and grades for these were capped at 25%.
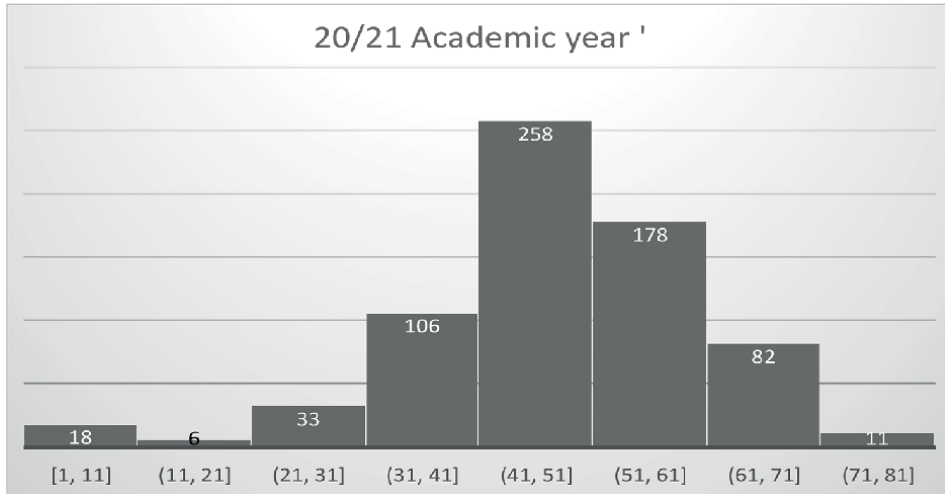
Figure 5.
This shows the performance across all eight sites where the old assessment was attempted in the 2020/2021 academic year. Most grades were between 41% and 51%.
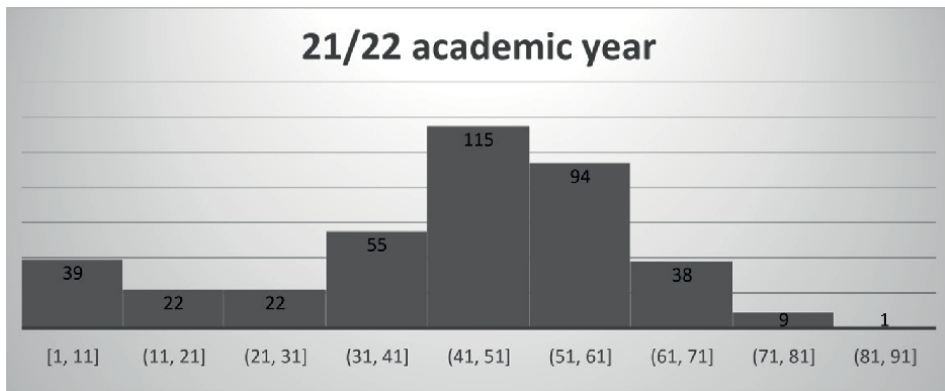

Figure 6.
This also shows the overview of performance across all 8 sites in 2021/2022 for the new assessment and overall, most grades remained in the 41–51% bracket suggesting that there was not much improvement in outcome for the students as a whole.

- Marking evidence suggested that students did better in the section on legislation and case law as compared with the section on media and the introductory section. This will be explored further in the discussion (**Figures 5** and **6**).

3. Discussion

The importance of assessments in HE continues to remain an issue under consideration and there are those who argue that assessments act as evidence of student learning and that students' learning is achieved by the assessment process [22]. Although it would appear that there is a lot of focus on teaching and learning strategies, as a way to improve the student experience and enhance student engagement,

assessments must be seen to be fit for purpose that takes connivence of the diverse nature of our student groups [23]. Regardless of this, it is still imperative to explore what really is the point of assessments in HE, This question involves considering different approaches and perspectives and understanding that there are complexities that must be addressed in order to ensure that the assessment process is not just yet another mandatory exercise in HE that is executed as an expectation of both the staff and students but rather, that it is an actual tool that can be used to improve the learning experience of the students.

Drawing on the assessment used for this study, the first thing to be considered was the cohort being assessed. The data showed that there were a significant number of students across the two academic years that scored 1–10% which is indicative of academic offenses, and in addition, those who have not followed the assignment specifications which suggests that they may have contracted out their work to a third party. Thinking of who we are assessing, this is relevant because it can be argued that students may be making the decision to get help with their assessments as a result of a lack of confidence in their own abilities. This was one of the criteria in mind when the new assignment was designed as a four-part portfolio to allow students with a range of abilities to be able to successfully engage with the tasks and maximize their grade outcomes. Bretag et al. [24] argue that the designing of an assessment can be a determinant to the student's ability to contract it out and from the figures above, the increase from 2.6% to 9.8% of students falling in the lower grade category shows that students more students were not engaging with the new assessment despite the changes. This could be an area for further research to explore the barriers limiting our students from engage with different assessment types.

Another issue that has been identified is what we are assessing for. There is significant the discourse around the need for inclusive assessments and this formed the basis for the redesign of the assessment. The redesign of the assessment was influenced by some of the key themes identified in the Culturally informed assessments toolkit such as 'unclear and inconsistent instructions', 'inexperience in certain assessment modes' and 'clarity of assessments. Drawing on the guidelines of the Universal Design for Learning (UDL), the process of planning and designing of assessments was structured and focused on achieving the provision of 'multiple means of engagement, representation, action and expression' [21]. The assignment design also offered choice and autonomy with the students able to choose from four specific areas to write about, thus engaging student interest and acknowledging the diverse learners as well as their individual backgrounds and employment routes. This also afforded students the ability to link learning to employment particularly for those already in work, and for the students with no practical experience, the idea was that they would be able to learn from colleagues during workshops and assignment preparation sessions and in so doing, engage in community and collaboration. In addition to inclusivity, the new assessment was designed to mitigate for academic offenses and the issue of the authenticity of student's work by ensuring that elements of the assessment required personalized reflections which could not be successfully addressed without engaging in the assessment preparation sessions.

In reflecting on the question of what we are assessing, this assignment was designed based on UDL themes to assess for interest, perception, comprehension, and expression and communication. Section one was the background or introduction which tests their academic writing skills, research skills, and knowledge of the issue being discussed. The second section required the use of a media source (print or video) reporting on the social issue, and this allowed students show their interest

in an issue, as well as their perception of how the media influenced the discourse on the issue and inadvertently the law and practice. The third section was the legislation and case law section which allowed students to engage with legislation and evidence their awareness of the law and case law to explore how the law is used in practice. The data showed that students did better in section three which was a surprise as this was deemed (by both staff and students) to be the most challenging section and students did worse in the second section which was included to encourage a non-academic element to the assessment to allow those who struggled with academic skills (research, writing and analysis) maximize their grades.

It can therefore be argued that since what we assess is useful only if it is deemed relevant by students, and other stakeholders such as politicians, industry, academics as well as the society in general [22] it is worth exploring what is the point of assessments.
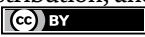
4. Conclusion

The purpose of this reflective piece is to challenge us as academics, teachers, and members of faculties to engage in frank dialogues about the point of assessments. The experience of redesigning an assessment with the view to improve student engagement and grade outcomes, drawing on specific frameworks that arguably could ensure these goals were met has been an interesting one with very surprising outcomes. The grades on the unit worsened, and students did not do better in the non-traditional elements of the assignment. Bad academic practice increased which could be because of the student's lack of confidence and/or comprehension of the assessment purpose and requirements. There are no quick answers but an understanding that to continue to encourage better outcomes and experiences for students, we would need to keep asking ourselves '*what is the point of assessments?*'.

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Chapter 19

Competency Modeling and Training Needs Assessment for Staff Development in Higher Education

Chan Lee, Jin Gyu Han and Simon Sang Hoon Shin

Abstract

In the Digital Transformation era, Higher Education Institutions (HEI), including universities are seeking various methods to cope with the digital environment. Human resources management and development can be implemented in the HEI because university staff is the main human capital of HEI. In order to promote the performance of HEI, it is essential to develop the competencies of university staff, including digital literacy. The following research presents a redefinition of competencies for job levels of university staff and the training needs assessment of each competency for the Digital Transformation era. The result of the research implies that HEI should consider the emerging competencies and develop its staff for work efficiency and competitiveness of them in the Digital Transformation era.

Keywords: staff development, competency model, needs assessment, determining priority, higher education

1. Introduction

The aging population structure, declining school-age population, and Digital transformation, recently accelerated by COVID-19 demands that universities prepare new survival measures [1]. Universities seek various means to respond to external environmental changes, such as management and development of human resources and transition to consumer-centered education, as well as digital transformation [2–4].

Digital transformation refers to the act of turning innovation, culture, and systems of organizational structures into a digital basis to respond to various changes caused by digital elements. In a broad sense, digital transformation means "changes related to applying digital technologies to all aspects of human society [5, 6]." Besides digitization of the assets, digital transformation includes the use of digital technologies that enhance the experience of interested parties, employees, and customers [7, 8]. Accordingly, a digital competency, that is, understanding and utilizing digital technologies, is crucial in coping with the digital transformation era and promoting related

strategies. On the organizational level, members are required to cultivate digital competency [9, 10]. Digital competency converges on various concepts demanded by the informational and technological environments, such as the Internet, media, information, and digital literacy. Among such concepts, digital literacy is most closely related to digital competency [11, 12]. Beyond the ability to use certain hardware or software, digital literacy embraces the ability to judge the value of the information as well as create new information. It can be understood as a strategic ability for attaining goals [13–16]. If the competency level in digital literacy increases, one can better understand and contribute to the changes in the management strategy of an organization during the digital transformation era. Since digital literacy is also critical for universities, it is necessary for their staff to strengthen their competency from the digital literacy perspective [5].

In the digital transformation era, universities and their administrative staff need to strengthen digital literacy [5], but there is a lack of interest and research on competency development among the administrative staff [17]. The reason is that the administrative staff is considered to play just supportive and assistive roles compared to the faculty and students. Moreover, universities do not share information about human resources due to competition [18, 19].

The purpose of this study is to develop a competency model for the administrative staff of National University Corporation A to increase the competitiveness and improve performance of the universities in the digital transformation era. When developing the competency model, the digital literacy competency that was emphasized earlier will be included, and the process of transforming and reconstructing the competency model for administrative staff at A National University Corporation will be carried out. This change can be seen as a remodeling process that repeats the competency modeling procedure according to the circumstances and purpose. In addition, this study aims to additionally analyze the training needs by job level to improve the utility of the developed competency model. The following three research problems are set. First, confirm the competency required for each job level of the administrative staff of National University Corporation A. and perform the competency remodeling. Second, secure the validity of the competency model derived through internal and external expert reviews. Third, verify the importance of the competency by job levels and differences in the levels of possession through the training needs analysis.

2. Theoretical background

2.1 Competency of university administrative staff

In the early stages, competency was meant in a broad sense that includes the psychological and behavioral characteristics of human beings [20]. Later, the competency was specified by the internal characteristics that explain the behavior to discern differences between persons with high and average performance, including knowledge, skills, abilities, and other characteristics [21, 22].

Competency on the organizational level can be regarded as a combination of the unique resources and abilities of an organization to attain its strategic goals [23]. Competency on the individual level is the combination of knowledge, skills, and attitudes that influence the work performance of individuals and can be improved through education and training [24, 25].

In the 1990th, South Korean companies were actively introducing a competency-based approach to the development of human resources to improve competitiveness [26]. As universities turn into organizations that create performance, there are increasing cases that perceive the importance of staff competency and implement a competency model [2]. The focus of the research on the improvement of the abilities of the university administrative staff is shifting from job to competency [27].

2.2 Competency modeling

Competency modeling is the process of investigating the key abilities of the employees for attaining the purpose of the organization. The competency model, as the outcome of a competency modeling, refers to a system of competency that contains the core knowledge, skills, actions, values, and behaviors that effectively perform roles and contribute to performance creation [28, 29]. Different scholars propose different methods of the development of the competency models, but they share the common purpose of increasing the performance of individuals and attaining organizational goals effectively.

The representative methods of the development of the competency models include the following: (1) job competency assessment method, (2) modified job competency assessment method, (3) generic model overlay method, (4) customized generic model method, and (5) flexible job competency model method proposed by Dubious [30], as well as (1) classical method using reference group, (2) shortened study using expert panels, and (3) future job and personal job competency model development method proposed by Spencer and Spencer [31]. Besides, Rothwell and Lindholm [32] proposed three methods, namely (1) borrowed approach, (2) borrowed tailored approach, and (3) tailored approach. Lucia and Lepsinger [33] proposed two methods, namely (1) new model development method and (2) method of using verified models. The competency model methods above can be classified into the methods of developing new competency models, methods of modifying the existing competency models according to the organization, and methods of developing competency models based on the circumstances of a given job or special purpose [34]. The competency model development methods proposed by the researchers vary in the details, but they commonly include the following: (1) investigation of high performance, (2) lection of persons with high performance and average performance according to certain criteria, (3) summarization of the characteristics of persons with high performance (BEI, observation, etc.), (4) initial determination of the competency model, (5) competency verification (repetition of same or different methods, alternative research, expert verification, etc.), and (6) finalization of the competency model.

As the importance of digital competency grows in the digital transformation era [35], studies on the competency modeling to attain internal strategic goals of organizations include digital literacy competency [36, 37].

2.3 Needs assessment

The concept of a need is generally defined as the difference between the required and present levels [38]. Needs assessment is one of the factors of success in developing training programs for adults; selecting a method of needs assessment is a critical part of the program development [39].

Needs assessment in education is intended to develop training programs and refers to the state that resolves differences between the required and present levels of learners [40].

In Korea, almost up to 75% of the studies on adult education and training between 1990 and 2005 used a questionnaire technique, and many studies only considered one criterion instead of analyzing differences between the required and present levels [41]. Accordingly, Kim [40] proposed to register differences between the required and present levels when collecting data for the needs assessment. Since the 2000s, studies have suggested the t-value and correlation between the priorities by performing t-tests on the required and present levels [42, 43]. Other studies [44, 45] used Borich needs assessment to determine priorities.

Borich needs assessment is used by many researchers worldwide [27]. Borich [46] defined training needs as the discordance between the training purpose and student performance and stated that training needs could be identified by analyzing differences between the present student level and the target level of training programs. The Borich model proposed an equation that assigns weight to the required level and determines priorities by listing the results (refer Borich needs assessment Eq. (1)):

$$\frac{\sum (RCL - PCL) \times R\bar{C}L}{N} \tag{1}$$

$$RCL : Required\ Competence\ Level$$

$$PCL : Present\ Competence\ Level$$

$$R\bar{C}L : Mean\ of\ RCL$$

$$N : Population$$

3. Study methods

3.1 Selection of the development method for the competency model

Based on the literature review related to the development of the competency models, the universities without a competency model are developing a new competency model [47–49] National University Corporation A, a research organization, was confirmed to have a competency model developed in 2017. Under these circumstances, it would be more efficient to modify and use the verified competency model than to develop a new one. Therefore, the generic model overlay method proposed by Dubious [30] was selected as the key research method, and the process of modifying, supplementing, and reconstructing the existing competency model was named competency remodeling [50, 51]. However, the method of using an existing competency model has its limits in reflecting various characteristics, such as the organizational environment, jobs, and roles. Considering these limits, this study used the existing competency model but included a process verifying the newly-derived competency model by HRD experts and internal interested parties.

3.2 Procedure and method of competency remodeling

The procedure and method of competency remodeling performed in this study are based on the 'generic model overlay method' proposed by Dubious [30].

3.2.1 Competency structure design

Job levels, roles, and responsibilities of the administrative organization of National University Corporation A were examined to design the competency structure. The administrative organization of National University Corporation A has 1084 corporate employees, classified into job levels 1–8. If classified according to the internal duties, the employees are divided into five job levels (levels 1–3, level 4, level 5, level 6, levels 7–8). The roles and responsibilities for each level are configured based on five job levels, and it is necessary to design the competency structure for full-time employees that applies to the development of the job level competency model. Hence, in-depth interviews with the Personnel and Human Resources Departments and persons with high performance were conducted to reconfigure the roles and responsibilities for every job level. During the in-depth interviews, the existing roles and responsibilities for every job level were modified and supplemented to confirm the duties and details and determine the required level of digital competency. These details were used to classify the competency for each job level within the competency model.

3.2.2 Competency extraction and arrangement

To determine the competency required for the administrative staff of National University Corporation A, a literature analysis was performed. The competency candidate group was formed by including the competencies proposed by public institutions and universities in South Korea and overseas as well as the competencies from existing competency models, accounting for the roles and organizational characteristics of the university administrative staff. The competency candidate group included competencies related to digital understanding and use to derive a competency model appropriate for the digital transformation era. After the competency candidate group was formed, the competencies suitable for each job level were arranged to take into account the roles and responsibilities for every job level.

3.2.3 Adjustment and integration of extracted competencies

An expert workshop was conducted to adjust and integrate the competencies by the job levels. The competencies that belong to the competency candidate group for every job level were reviewed at the expert workshop to integrate similar competencies and finalize them. The adjustment and integration of the extracted competencies were carried out simultaneously while deriving the competency model, and the competencies judged to be commonly required by different job levels at the workshop were categorized as common competencies. In addition, competencies related to digital competency were combined in the name of digital literacy through a literature review. Digital literacy was determined as appropriate to be used as a concept similar to digital competency and to signify the strategic ability to use digital information to attain goals [13, 52].

3.2.4 Competency model

To derive the competency model for the administrative staff of National University Corporation A, three workshops were held. Five HRD experts in the public sector participated in the first workshop to review the draft for the competency groups, competency names, and competency definitions and select five competencies for

every job level. The first workshop also reviewed whether the name digital literacy is appropriate as a name that represents digital competency. Four of the HRD experts in the public sector who participated in the first workshop participated in the second workshop to define modified competencies, specify behavioral indicators, classify competencies for every job level into five types, and review whether common competencies for every job level are to be included in the competency model. Five HRD experts in the private sector participated in the third workshop to review the adequacy of the definitions of the competencies for every job level derived during the previous workshops, behavioral indicators, and five competency types.

3.2.5 Finalization of the competency model

A Delphi survey was conducted to review the validity of the derived competency model and complete the final competency model. For the Delphi survey, it is important to build an expert panel with expertise in the respective field and to secure the reliability of the survey, 10–15 experts are required [53]. The Delphi survey is carried out in three stages, but two stages may be enough if a sufficient agreement is reached [54]. In this study, the expert panel was comprised of 20 experts recommended by the Personnel and Human Resources Departments and persons in charge of National University Corporation A, including 10 internal interested parties and 10 public and private HRD experts who participated in the competency model development stage and gained an understanding of National University Corporation A and university administrative staff. The first Delphi survey was carried out among 20 experts, and 16 experts responded to the survey. The second Delphi survey was sent out to the 16 experts who participated in the first survey, and all of them responded (refer to **Tables 1** and **2**).

The Delphi survey utilized Likert's 5-point scale to define each competency of the competency model, grant scores on behavioral indicators, make modifications, and describe additional opinions. The content validity of the gathered responses was measured, and the equation proposed by Lawshe [55] was used to calculate the

No.	Affiliation	Final degree	No.	Affiliation	Final degree
1	Professor at K University	Ph.D. in HRD	5	HRD expert of P Company	Ph.D. in HRD
2	Professor at S University	Ph.D. in HRD	6		Ph.D. in HRD
3	National research institute related to HRD	Ph.D. in HRD	7	HRD expert of H Company	Ph.D. in HRD
4		Ph.D. in HRD	8		Ph.D. in HRD

Table 1.
List of participants in second Delphi survey—External experts.

No.	Affiliation	Job level	No.	Affiliation	Job level
1	National University Corporation A	Level 4	5	National University Corporation A	Level 4
2		Level 4	6		Level 5
3		Level 4	7		Level 5
4		Level 4	8		Level 5

Table 2.
List of participants in second Delphi survey—Internal experts.

Content Validity Ratio (CRV) for each competency. The validity of the competency model was secured through the Delphi survey results, and the opinions were reflected to derive the final competency model.

3.2.6 Analysis of training needs

To study the requirements for competencies by job level, a survey was conducted on 1084 corporate employees of National University Corporation A. The subjects of the survey were selected considering the fact that only full-time employees receive education by job level. The survey was conducted online, the subjects received links to the questionnaire by email valid for 2 weeks, and 393 subjects participated. After excluding 33 unreliable responses, 360 responses were analyzed. The Borich needs equation was used to analyze the competency needs by job levels.

4. Results

4.1 Competency remodeling by job levels of administrative staff at national university Corporation A

4.1.1 Roles and responsibilities of the administrative staff at National University Corporation A

The definitions, roles, and responsibilities for every job level reconfigured based on the literature analysis and in-depth interviews with the Personnel and Human Resources Development Departments and persons with high performance are presented in **Table 3**. Jobs at National University Corporation A were classified into five levels: levels 1–3 for upper-level managers, level 4 for mid-level managers, level 5 for low-level managers, level 6 for mid-level staff, and levels 7–8 for low-level staff.

4.1.2 Extraction and arrangement of competencies for administrative staff at National University Corporation A

Competency candidate groups with 66 competencies related to university administrative staff were formed by analyzing literature in Korea and overseas.

Job level	Roles	Definitions
Levels 1–3	Upper-level managers	Leaders of the organization who can present the vision and goals of the organization
Level 4	Mid-level managers	Managers who understand the organizational circumstance based on analytical thinking and can lead the organization effectively
Level 5	Low-level managers	Coordinators between managers and staff who promote cooperation among members
Level 6	Mid-level staff	Key staff creating a work culture for communication and cooperation
Levels 7–8	Low-level staff	Staff sincerely performing given duties within the organization

Table 3.
Roles and definitions by job levels at National University Corporation A.

Competencies were arranged according to the roles and responsibilities by job levels based on the literature analysis and interviews. Levels 1–3 or upper-level managers were assigned 12 competencies, level 4 or mid-level managers—13, level 5 or low-level managers—12 competencies, level 6 or mid-level staff—10 competencies, and levels 7–8 or low-level staff were assigned 11 competencies. Eight competencies determined necessary for all job levels are stated as common competencies (refer to **Table 4**).

4.1.3 Derivation of competency model for administrative staff at National University Corporation A

Competencies that belong to the competency candidate groups were integrated and defined as competency groups by five job levels and the common competency group by going through adjustment and integration. The draft of the competency model was reviewed by HRD experts in the public and private sectors (refer to **Table 5**), and the final competency model for each job level was derived by reflecting feedback (refer to **Table 6**).

The finally derived competency model for each position was composed of 25 competencies for the same positions as the existing competency model, but 12 competencies were modified and supplemented and 2 competencies were added (**Table 7**).

4.2 Verification of validity of the derived competency model

Two surveys were conducted among the internal interested parties and HRD experts to review the validity of the final competency model. The necessity to modify the terms of the competency model according to the roles and responsibilities for

Job level	Roles	Competency pools
Levels 1–3	Upper-level managers	Value orientation, global, goal setting, future prediction, change management, vision provision, business sense, flexibility, decision making, human resource management, strategic agility, strategic thinking
Level 4	Middle-level managers	Plan establishment, motivation, change management, judgment, performance orientated, work innovation, risk management, interest relationship adjustment, human resource management, coordinating ability, organizational management, organizational culture management, judgment
Level 5	Low-level managers	Conflict management, emotional communication leadership, task management, network management, logical thinking, goal management, work coordination, process management, convergent thinking, integrated adjustment, coaching, team member management
Level 6	Middle-level staff	Critical mind, problem-solving, trust formation, business promotion, work management, business negotiation, resource organization, creativity, communication, cooperation
Levels 7–8	Low-level staff	Courteous listening, customer-centeredness, positive thinking, interpersonal relationship, time management, passion, information management, adaptability, job understanding, work ethics, sense of responsibility
Common competency		Data analysis, digital literacy, document preparation, problem solving, detailed work handling, idea derivation, work planning, communication

Table 4.
Competency pool by job levels.

Affiliation	expert	Details of feedback
Public	Kim, OO	Work process management needs to focus on managing the procedure for process systematization and manual development and providing feedback.
	Lee, OO	Digital literacy is a highly important competency, and it would be appropriate to define and reflect on this competency.
Private	Song, OO	It is advisable to specify relationship formation as 'relationship formation within the organization' to clarify the concept of relationship formation and integration.
	Yang, OO	Since negotiations also occur on the staff level, problem-solving and communication should be commonly included in all job levels.
	Park, OO	Considering the weight placed by National University Corporation A on future orientation, digital literacy should be commonly included in all job levels.

Table 5.
Examples of expert feedback.

every job level was partially posed during the first questionnaire, and the second survey was conducted by reflecting this opinion. After the second survey, the validity of the competency definitions by job levels and behavioral indicators by levels was analyzed based on CVR, as presented in **Table 8**.

4.3 Analysis of competency training needs by job levels of administrative staff at National University Corporation A

A survey was conducted to analyze the competency training needs by job level, and 360 subjects participated. Based on the characteristics of the respondents, there were more female and level 6 respondents affiliated with the Head Quarter and college (graduate school). Responses were collected at all job levels at National University Corporation A (refer to **Table 9**), and job levels that considered the roles and responsibilities of National University Corporation A configured previously were set as reference points to build a competency model that can be applicable at all job levels. A paired t-test was performed to analyze the level of training needs perceived by employees of National University Corporation A about the competencies at each job level included in the finalized competency model. The Borich needs equation was used to confirm the priorities for the training needs by competencies. The results of analyzing the training needs are shown in **Table 10**, and they were analyzed by classifying competencies into five job levels and common competencies.

Upper-level managers at levels 1–3 showed statistically significant differences between the current and required levels for all five competencies. The training needs were found in the order of strategic thinking (4.78), vision provision (4.78), decision-making (4.65), change management (4.54), and goal setting (4.01). In order to cope with changing circumstances inside and outside the organization, upper-level managers at levels 1–3 are required to show the ability to diagnose the organization based on strategic thinking and make clear decisions as leaders.

Mid-level managers at level 4 showed statistically significant differences between the current and required levels for all five competencies. The training needs were found in the order of organizational management (4.36), work innovation (3.95), judgment (3.76), risk management (3.43), and performance-orientated (3.14). Mid-level managers at level 4 are required to show the ability to manage the organization and achieve work performance based on their understanding of the organization.

Job level	Competency by job level					
	Leadership competency					**Common competency**
	Strategic	**Teamwork**	**Coordination and integration**	**Change**	**Performance**	
Levels 1–3	Strategic thinking	Visionary	Decision making	Change management	Goal setting	• Communication
Level 4	Work innovation	Organizational management	Judgment	Risk management	Performance oriented	• Problem-solving • Digital literacy
Level 5	Process management	Building internal relationships	Interest relationship integration	Conflict management	Task management	• Planning
Level 6	Work negotiation	Building trust	Work negotiation	Creative thinking	Systematic thinking	• Business writing
Levels 7–8	Time management	Adaptability	Interpersonal relationship	Work ethics	Responsibility	

Table 6.
Final competency model by job level (draft).

	Competency
Modification and supplementation competency (12)	Change Management, Work Innovation, Judgment, Process Management, Building Internal Relationships, Interest Relationship Integration, Work Negotiation, Creative Thinking, Systematic Thinking, Adaptability, Problem Solving, Planning
New competency (2)	Digital Literacy, Ethics

Table 7.
Modification, supplementation, and new competencies within the final competency model.

Job level	Competency	Avg	CVR	Validity	Job level	Competency	Avg	CVR	Validity
Levels 1–3	Strategic thinking	4.69	1.00	O	Level 4	Work innovation	4.69	0.88	O
	vision provision	4.63	0.75	O		Organizational management	4.63	0.75	O
	decision making	4.88	1.00	O		Judgment	4.88	1.00	O
	Change management	4.44	0.75	O		Risk management	4.50	0.75	O
	Goal setting	4.75	1.00	O		Performance orientated	4.88	1.00	O
Level 5	Process management	4.75	0.88	O	Level 6	Work negotiation	4.75	0.88	O
	Building internal relationships	4.44	0.75	O		Building trust	4.88	1.00	O
	Interest relationship integration	4.50	0.88	O		Collaboration	4.88	1.00	O
	Conflict management	4.38	0.75	O		Creative thinking	4.69	0.88	O
	Task management	4.75	1.00	O		Systems thinking	4.69	1.00	O
Levels 7–8	Time management	4.75	0.88	O	Common	Communication	4.88	1.00	O
	Adaptability	4.81	1.00	O		Problem-solving	4.88	1.00	O
	Interpersonal relations	4.38	0.75	O		Digital literacy	4.63	0.75	O
	Ethics	4.56	0.88	O		Planning	4.88	1.00	O
	Responsibility	4.94	1.00	O		Business writing	4.75	1.00	O

Table 8.
Results of comprehensive analysis of competency and behavior indicators by job level.

Low-level managers at level 5 showed statistically significant differences between the current and required levels for all five competencies. The training needs were found in the order of conflict management (3.51), interest relationship integration (3.38), building internal relationship (3.37), task management (3.30), and work process management (3.25). Low-level managers at level 5 are in the middle position within the organization, in charge of linking managers and staff. Conflict

		Frequency	%
Gender	Female	194	53.9
	Male	166	46.1
Affiliates	Head quarter	130	36.1
	College/graduate school	127	35.3
	Attached facilities	95	28.6
Level	Levels 1–3	14	3.89
	Level 4	28	7.78
	Level 5	69	19.17
	Level 6	121	33.61
	Levels 7–8	79	21.94
	Common	49	13.61
Total		360	100

Table 9.
Demographic information of respondents.

Job level	Competency	As-is		To-be		Difference			Borich	Priority
		M	SD	M	SD	M	SD	t		
Levels 1–3	Strategic thinking	4.18	0.86	3.04	0.98	1.14	1.18	18.43***	4.78	1
	Vision provision	4.15	0.87	2.99	0.96	1.16	1.21	17.99***	4.78	1
	Decision making	4.18	0.87	3.06	1.00	1.12	1.20	17.73***	4.65	3
	Change management	3.94	0.96	2.78	1.10	1.16	1.40	15.68***	4.54	4
	Goal setting	4.04	0.90	3.04	1.01	1.00	1.20	15.71***	4.01	5
Level 4	Organizational management	4.11	0.86	3.05	1.02	1.06	1.20	16.69***	4.36	1
	Work innovation	3.81	0.88	3.02	0.99	0.79	1.17	16.54***	3.95	2
	Judgment	3.88	0.86	2.86	1.03	1.02	1.19	14.74***	3.76	3
	Risk management	3.81	0.92	2.91	1.02	0.90	1.18	14.44***	3.43	4
	Performance orientated	3.84	0.86	3.02	0.99	0.82	1.14	13.69***	3.14	5
Level 5	Conflict management	3.91	0.91	3.01	0.98	0.90	1.19	14.29***	3.51	1
	Interest relationship integration	3.94	0.88	3.08	0.97	0.86	1.11	14.71***	3.38	2
	Building internal relationships	4.04	0.85	3.20	0.97	0.84	1.12	14.12***	3.37	3
	Task management	4.00	0.86	3.17	0.99	0.83	1.11	14.08***	3.30	4
	Work process management	3.95	0.86	3.13	0.97	0.82	1.06	14.70***	3.25	5

Job level	Competency	As-is		To-be		Difference			Borich	Priority
		M	SD	M	SD	M	SD	t		
Level 6	Creative thinking	3.69	0.92	2.92	0.99	0.77	1.12	13.07***	2.85	1
	Work negotiation	3.78	0.83	3.13	0.92	0.65	1.02	12.15***	2.45	2
	Systematic thinking	3.81	0.83	3.18	0.89	0.63	0.95	12.54***	2.39	3
	Cooperation	3.77	0.84	3.21	0.92	0.56	1.02	10.26***	2.08	4
	Building trust	3.72	0.89	3.24	0.90	0.48	0.97	9.40***	1.79	5
Levels 7–8	Responsibility	3.96	0.95	3.32	0.94	0.64	1.02	11.95***	2.54	1
	Adaptability	3.73	0.96	3.13	0.98	0.60	1.05	10.97***	2.26	2
	Interpersonal relationship	3.69	0.93	3.08	0.95	0.61	1.02	11.45***	2.26	2
	Time management	3.86	0.95	3.29	0.94	0.57	1.01	10.83***	2.23	4
	Work ethics	3.68	0.98	3.17	1.00	0.51	1.01	9.66***	1.89	5
Common	Problem-solving	4.10	0.86	3.18	0.88	0.92	1.01	17.17***	3.74	1
	Communication	4.06	0.86	3.16	0.87	0.90	1.05	16.32***	3.67	2
	Digital literacy	3.91	0.93	2.99	1.00	0.92	1.25	13.88***	3.58	3
	Planning	3.94	0.86	3.04	0.91	0.90	1.10	15.49***	3.55	4
	Business writing	3.90	0.86	3.24	0.92	0.66	1.01	12.38***	2.58	5

$^{*}p < 0.05.$ $^{**}p < 0.01.$ $^{***}p < 0.001.$

Table 10.
Results of competency needs assessment by job level.

management, interest relationship integration, and relationship formation within organization are perceived as highly important competencies.

Mid-level staff at level 6 showed statistically significant differences between the current and required levels for all five competencies. The training needs were found in the order of creative thinking (2.85), work negotiation (2.45), systematic thinking (2.39), cooperation (2.08), and trust formation (1.79). As the position in charge of key work-level duties, level 6 staff are required to show the ability to perform administrative duties in a comprehensive and creative way based on systematic thinking.

Low-level staff at levels 7–8 showed statistically significant differences between the current and required levels for all five competencies. The training needs were found in the order of responsibility (2.54), interpersonal relationship (2.26), adaptability (2.26), time management (2.23), and work ethics (1.89). Staff at levels 7–8 are required to adapt to the organization by forming interpersonal relationships and show the ability to responsibly perform given duties.

All five common competencies also showed statistically significant differences between the current and required levels. The training needs were found in the order of problem-solving (3.74), communication (3.67), digital literacy (3.58), work planning (3.55), and document preparation (2.58). These results mean that the administrative staff of National University Corporation A is required to have additional competencies other than basic administrative competencies like document preparation.

5. Conclusions and suggestions

5.1 Conclusions

Based on the results of this study, the conclusions are as follows.

First, the competency model by job levels for the university administrative staff at National University Corporation A was derived by competencies classified by job levels and common competencies. This result is similar to previous studies revealing that there are competencies for university administrative staff required at each job level as well as common competencies. Digital literacy and Problem-solving competencies were verified as commonly required regardless of job levels. The fact that digital literacy competency is included in the common competencies implies that administrative staff are required to strengthen their digital literacy because of the increased implementation and use of digital technologies with the computerization of educational and administrative duties at the universities. In the present era where digital transformation occurs rapidly, the success of the digital transformation depends on the ability to secure human resources with digital competency [5], and including digital literacy competency in the competency model and fostering it can mark a big turning point for raising the competitiveness of university organizations. Accordingly, it is necessary to continuously provide learning opportunities for the university administrative staff to improve their digital literacy competency, and there is a need to develop training programs and present road maps by levels of digital literacy required for each job level and duty.

Second, five specific competencies were derived for each job level of the university administrative staffs. In this study, the competency model was developed efficiently by utilizing the generic model overlay method proposed by Dubious [30], and organizational characteristics and requirements were reflected based on in-depth interviews. The completed competency model classified competencies by job levels based on five items, and elementary, intermediate, and advanced behavioral indicators were presented with the definitions of the competencies to increase the utility as the basic data for diagnosing and fostering each competency. Competency models are used restrictively in the areas other than education and training, such as career development and assessment [2]. They can be used to determine suitable applicants during the selection and recruitment stages, verify the effectiveness of the programs in the education and training stage, and judge the attainment of goals in the assessment stage. Therefore, it would be necessary to consider the methods of expanding the scope of behavioral indicators for each level of difficulty to the criteria for measuring the transition effects of the competency diagnosis tools and competency-based programs.

Third, the completed competency model verified high-priority competencies to be developed for each job level by analyzing the training needs for each job level through questionnaires. This result has significance in verifying the competencies to be developed preferentially for each job level and presenting the directions for human resource development for university organizations. The competency model must be modified and supplemented periodically to identify the training needs by job levels and set the directions for HRD operation in the future. In particular, since digital literacy is a concept that responds sensitively to technological advancement and social needs, it needs to be modified and supplemented continuously [37]. Accordingly, the competency model should be reconfigured based on the level of changes in competencies and used in practice [5].

5.2 Suggestions

Based on the results of this study, suggestions for future research are as follows.

First, additional research is required on the development of competency models for administrative staff at national and private universities. Since this study is limited to a large national university corporation with about 1100 corporate employees, there are limits in generalizing the study results onto national universities of all sizes. In the public sector, performance and research efficiencies differ according to the size and characteristics of the organizations [56, 57]. There are differences in the scope and level of work performed by the administrative staff according to organizational size. In particular, private universities are founded by educational foundations and therefore are influenced by the affiliated foundation. Administrative staff put greater emphasis on the private relationships than on the public ones, and they show various desires for job stability, remuneration, and job promotion depending on the location and size of the university [3]. Therefore, it is necessary to conduct additional research on the development of competency models based on the characteristics of each organization.

Second, in welcoming the digital transformation era, university administrative staff must promote talent transformation to increase their work efficiency and strengthen the competitiveness of the universities. Digital transformation and smart infrastructure formation accelerated by COVID-19 demand that people work in a new environment. Accordingly, learning agility, the ability to learn new aspects quickly, has become one of the core future competencies, along with digital literacy [58]. Such competencies must be developed by taking approaches on both individual and organizational levels. Organizational competencies are the preconditions for strengthening individual competencies [59], and adequate organizational support and intervention are needed in the circumstances that demand a new way of working. Particularly, the universities have difficulties applying the educational mechanisms of regular organizations because they guarantee tenure, subdivide duties, and implement regular job rotations [60]. With such characteristics of the universities under consideration, studies must be conducted on providing a self-directed learning environment, improving the competencies of the administrative staff through the reconstruction of the organizational culture, and changing perspectives instead of simply providing a one-time educational opportunity.

Third, the organization of the job system for the university administrative staff must be reviewed in alignment with the digital transformation era. Major universities are seeking changes based on digital technologies as a strategy to align with the digital transformation era. When universities implement digital technologies, they lead to the collaboration between the human beings and AI instead of human-to-human collaborations. Some jobs and resources are replaced by AI, and the job system needs to be reorganized through job analysis, mapping, and redesigning [58]. From the viewpoint of promoting the coexistence of AI and human beings [58], additional research must be conducted on the process of recreating duties so that employees in charge of establishing organizational strategies can make their duties meaningful by changing the perception of them [61].

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Chapter 20

Perspective Chapter: Writing Retreat – A Trajectory towards Academic Language Enhancement

Bulelwa Makena

Abstract

Structured research writing retreats are noted for their characteristic to enhance academic writing among postgraduates as novices in the field of research. Nevertheless, as these researchers are expected to display creativity in paper writing, there are still challenges to transcribe and paraphrase own thoughts instead of transferring experiences by other scholars. It is for this reason that this chapter felt compelled to outline its aim at investigating whether writing retreats have any significant value as trajectories to redefine and enhance academic language for the so-called 'emerging researchers'. Additionally, as researchers are loaded with other assigned duties at their workstations, this causes a limitation, yet with an effect of declining confidence in writing abilities. Findings for this investigation confirmed that a huge challenge for this cohort of students was limited space and time to work into finality the expected throughput, as compared with seasoned researchers who are already acquainted of creating own writing spaces. It is for this reason that this chapter suggests and recommends that events such as writing retreats have power to shape postgraduate students towards modified academic writing, thereby leading to enhanced academic language.

Keywords: researchers, writing retreat, language enhancement, academic writing, paraphrasing

1. Introduction and background

Writing retreats for academia have been noted of the significance they bring towards researchers in manuscript writing, as such, this has now become a prevalent yet widespread event aiming at capacitating authors embarking on academic writing [1]. As academic staff have now resorted to using writing retreats as a weapon to lifting up research output coupled with improved scholarly writing and augmented academic productivity, there is still a gap because little is considered that postgraduate students could be assisted by these events to enhance writing self-efficacy [2]. This manuscript already believes that if this cohort of students could be supported through such academic events, there would surely be a trajectory towards academic language enhancement as this has been identified as a lacking factor in

most submissions during dissertation and thesis writing [3]. For students at this level of study to be having a deficit in academic writing and language enhancement, there really seems to be a need for academic writing retreats to be remedial devices towards this handicap.

Consequently, Honours' and Masters' students undergo processes to write their dissertations as a prerequisite towards completion of the programme enrolled for. During this entire period, they solely depend on allocated supervisors for professional guidance in order for progress to be eminent, yet without any supplementary support [4]. It is worth to note that the very same supervisors have plenty modules to offer in different levels and across varying programmes. On the other side, the very cohort of Honours' and Masters' students are mostly workers employed in diverse sectors. This limitation for both these recipients to research writing, supervisors and supervisees really raises some alarm bells if there are limited alternative strategies put in place to curb the situation [5]. It is for this reason that this chapter explores writing retreats as a trajectory for improved academic language enhancement for students expected to re-design 'dissertation writing' as one of the prerequisites towards graduate attributes. The subsequent section is where literature is unpacked in relation to the benefits of structured academic writing retreats to sustain postgraduate students' academic writing logic and language enhancement.

2. Literature review

2.1 Empirical literature

2.1.1 Writing retreat as a supporting aid for postgraduate students

Compiling written text and paraphrasing for an audience of academics is no mean task as this group of people critically interrogate whatever text they come across, with a critical eye and own justifications besides those outlined by the author/s of the manuscript. Further than that, academic writing is classically characterised by technical aspects, effective writing logistics and academic language [6]. Through academic writing aspects, not only limited to the listed ones, a scholar also needs to be conversant enough when undertaking whatever form of scholarly writing, either a manuscript or dissertation or thesis [7]. As authors experience some individual hindrances and diverse challenging factors when engaging on academic writing, writing retreats with their pedagogies have since been noted to be remedial necessities [8]. For enhanced academic writing and language skills, there seems to be a dire need for consistent organisation of academic writing retreats to empower and benefit the supervised and supervisors. Engaging in this practice has a likely wood to empower university students towards enhanced academic language indulgences.

In line with enhanced academic language, it is alleged that some models on Academic Literacies (AL) are recommended for use as they have a feature to arouse development of students' writing yet addressing language as a barrier to excelled academic writing [9]. As students at tertiary institutions of higher learning engage in platforms such as AL's collaborations and academic writing retreats, confidence is boosted, as indicated by respective teachers when reverting to students for feedback [10]. This corresponds with one of the supervisors reported in literature that after students were referred for capacitation at the Academic Writing Centres (AWC's),

as they were expected to re-submit previously submitted texts, improvement was recognised in academic language enhancement more so because of paraphrasing the given texts. It is for this reason that research suggests and recommends consistent and ongoing research writing retreats as significant benefactors to all recipients involved in research-related writing activities. Embarking on this type of activity is not only seen as remedial for university students but cuts across as a community-based academic pedagogical activity for either undergraduate, postgraduate, novices and seasoned scholars in the field of research. It is therefore essential that all scholars in academia be timeously provided with sustenance for sharpened research and authorship abilities [2].

2.1.2 A prospective solution of bringing together a community for related research fields

Through academic writing retreats, students with relating research fields collaboratively engage to work as a team, thus breaking isolation challenges [11, 12]. A great deal of students is faced with frustrations of locking themselves in their little corners when expected to write their dissertations, yet research writing is an exercise that requires collaborative teamwork. This helps to brainstorm and share ideas with scholars within the same field of study. This is the platform that allows a quiet space without disruptions from either home or workplace surroundings [13].

Accordingly, these are spaces with exquisite approaches that open door for discussion forums to further reconnoitre socio-professional prospects not only limited to individual proficiency fields. As the notion of isolation is cut off and broken into thin lines in between diverse students from varying programmes enrolled for, there is exposure to share academic writing objectives, common challenges and fruitful experiences [14]. As collaborations and exchanging own thoughts about one's work constantly take place within students as peers, within supervisees and their supervisors, within mentors and mentees, the ultimate goal is strengthened cohesion between dissertation/thesis writers.

Henceforth, as writing retreats seem to have become a potential solution, throughput rate for students graduating has been improved as compared with previous instances when such events were not organised for the cohort of postgraduate students [15]. In line with this statement, allocated supervisors also resonate that students who attended writing retreats perform better in academic language enhancement. Be that as it may, the question remains on whether taking students to only one writing retreat throughout the entire academic year is sufficient or not. This chapter raises such a concern on noting that although writing retreats are organised just once yearly, there are still reported cases of students who resort to dropping out when held up in challenges of being unable to write into completion their dissertation as the system only allows a specified number of academic years for students to be registered for a particular programme [16].

Research therefore articulates and recognises production of academic writing. This is made evident by students who attended academic writing retreat as they accord prospects of improved academic language enhancement, time management, self-discipline and improved personal schedule on intended time frames for attaining their expected writing objectives [7, 17, 18]. Another overwhelming report is one research finding that was reported. Writing retreat imperatives indicated huge number of hours spent specifically on writing, yet considering logistics of reduced isolation, continued student support and attainment of realistic personal targets [19, 20].

2.2 Theoretical literature

Underpinning this investigation is the Conceptual Map of the relationships between retreat outcomes and key themes [21]. This analysis is where research writing attributes are presented, thereby supporting writing retreat approaches as they enhance publication throughput percentages [22, 23]. In his conceptual map [21] distinguishes five key elements necessary for organised and professional publication output.

As identified in the figure below, the stated five elements envisage (**Figure 1**):

- **Organisational investment** which depicts availability and willingness of experienced mentors, allocation of resources and follow-up support

- **Community of practise** which entails collegial support, social interaction, shared vision and mentorship
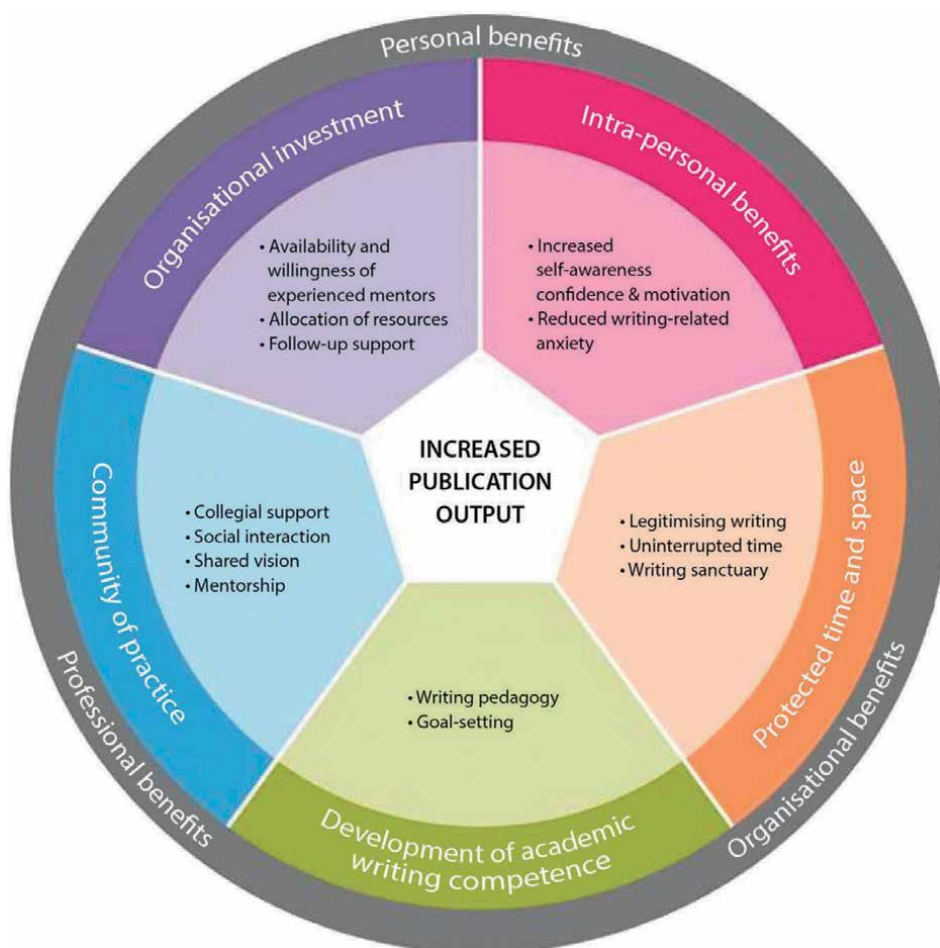
Figure 1.
Conceptual map of the relationships between retreat outcomes and key themes [21].

- **Development of academic writing competence** portraying writing pedagogies coupled with goal setting

- **Protected time and space** depicting legitimised writing, uninterrupted time and writing sanctuary

- **Intra-personal benefits** necessitating increased self-awareness, confidence and motivation as well as reduced writing-related anxiety

For a grounded approach to academic writing retreats, these five elements are considered as core towards attaining the intended publication throughput, together with improvement in academic language used during dissertation and thesis writing by Honours' and Masters' students [24]. Be that as it may, as graduate students are novice in the field of authorship, they still experience paraphrasing encounters when expected to write academic texts [25]. This therefore implies that consistent writing retreats have to be organised as a remedy to tackle and overcome such existing challenges. Success for the arranged academic writing retreats solely depends on protecting both time and space concurrently for writing, assigning numerous days consecutively and also intensifying continual writing periods [26]. When these basics are highly considered during periods scheduled for academic writing retreat, authors would have obtained assuring prospects for effective and efficient scientific production [27]. Consequently, to ease the pain and frustration of isolation during dissertation writing, there is an urgent need for postgraduate students to be taken through all the five stages as proposed [28].

3. Methods and materials

Methods and materials in research writing logistics are those techniques or specific procedures which are used by researchers to help at classifying, choosing and processing data about a subject that is being studied. Therefore, this is the section where this chapter has displayed all methods and methodologies of research used when this investigation was conducted [29].

3.1 Research approach

For the purpose of this investigation, qualitative approach was seen as the most prominent research method with its aid when there were engagements between the author and study participants [30]. As collaborations were further extended due to the nature of debates, there became an emergent understanding in relation to university postgraduate student' experiences in their real-life situations when expected to undertake academic journey of dissertation writing despite scarcity of intervention strategies such as academic writing retreats.

3.2 Methodological design

Embedded in this qualitative investigation is a case study design. A case study is renowned with its characteristic of generating in-depth yet considerate understanding of compound concerns entangling humans in their real-life situations [31]. It is for this purpose that there emerged some interest to explore how postgraduate students

are recipients to dissertation and thesis writing could be capacitated at accomplishing academic language enhancement through academic writing retreat trajectory. For postgraduate students to experience such challenges is worth a great concern as their publications are revealed out there for the entire scholars around the world to perceive and aspire.

3.3 Population and sampling

Population for this investigation entails all students enrolled for Honours' and Masters' Programme in one selected university, an institution of higher learning in the Eastern Cape Province of South Africa. Therefore, the sample specifically for this study entailed four purposefully nominated participants of which two were registered Honours and the other two were registered for the Masters' programme [32]. Research resonates that identifying participants in a purposeful manner is when a researcher selects those with experience in relation to the investigated field of study, relevant, as well as accessible. Participants willingly agreed to take part in this investigation after clarities were made that both their identities and responses were to be kept anonymous and that at any given point in time when they felt threatened, they had access or withdrawal rights [33]. For this investigated institution to offer only a single academic writing retreat once yearly for postgraduate students, it was proved imperious that the selected participants proved to be the relevant sample to supply findings of this inquiry with the projected outcomes, as envisaged by the inquiry itself.

3.4 Research instruments

As advocated by the nature of this inquiry being a qualitative one, semi-structured interviews were administered as data collection tools, as yet this type of tool allowed for robust engagements between the interviewer and the interviewed as essential and critical themes were distinguished [34]. Contained in the interview schedule were open-ended questions which allowed participants a huge ground to respond as far as one would have anticipated. Items asked were centred on viewpoints by postgraduate students with regard to solely depending on allocated supervisors for professional guidance in dissertation and thesis writing, taking into note that capacitation activities such as academic research writing retreats were more than the word scarce. Time factor proved to be a major limitation as both the researcher and participants were workers serving in different sectors. This led to the investigation not finished at the anticipated period as some of the appointments secured would abort due to diverse logistics factors. Interviews commenced during September month and could only be consolidated mid-November and that was when the researcher was able to collate on analysing all collected data.

3.5 Data collection procedures

On each of the arranged meetings between the interviewer and interviewees, all participants' responses were recorded to ensure that no single response was left uncaptured and unnoticed. When participants could no longer respond and reflect on any new sources of information, and after the researcher had exhausted at posing some follow-up questions which were primarily not contained in the original interview schedule, there was a feeling that interviews had then reached a point of saturation. It was during this period that analysis of data began. This was done by playing and re-playing all recordings, repeatedly done for the purposes of ensuring

that all information was well captured and perceived. During this process, there emerged some similarities, relationships and connections. Research allows that such sub-categories of responses be classified together as a single category, thereby leading to formation of themes discussed subsequently as findings of the study [35].

4. Research results

As data were analysed and then classified as categories, two themes emerged as findings to this inquiry. With regard to academic writing retreat as a trajectory towards academic language enhancement, it was divulged as a major finding that when postgraduate students embark on writing retreat as academic events, there is (i) increased throughput publication rate. It also emerged as the second finding that attending academic writing retreats have been proven to have a track record of (ii) re-imagined scholarly attitudes.

4.1 Increased throughput publication rate

On engagements in relation to benefits brought about by academic writing retreat attendance,

Participant A debated:

In my previous studies while enrolled for my undergraduate studies, I nearly dropped out as the mini-research project was a real hell to undertake. I would lock myself in a room trying to figure out what is expected of me as comments from my supervisor made me feel like an utter fool.

This debate is harmonised by Participant D who shared own experiences:

As I arrived at the venue od day one where the writing retreat was to be conducted, I was so nervous with the fear of the unknown. I anticipated this event to be like postgraduate presentations which normally make me to panic. Little did I know that we have been summoned to such an eye-opening event! It was the first event of its kind to be attended by our group. We were overwhelmed yet so privileged to have obtained a feel of other supervisors, with workshops in-between.

Concurrently, Participant B acknowledged:

After day one of the academic writing retreat, I wanted no supervise to delay me by conducting workshops! I just wanted to focus on and on at writing my dissertation. To my surprise, I felt like doomed to learn how imperative and essential was each presentation! When a workshop on research writing logistics was shared, I felt like starting all over again as the work I thought was legit, was full of technical errors! It was as if we would stay in that quiet space for the entire week.

4.2 Re-imagined scholarly attitudes

As findings discovered that scholarly attitudes had begun to be re-imagined,

Participant C when interviewed in this aspect responded:

I think that stereotype attitude towards research writing is beginning to shift away a little bit. As I collaborate with other students researching on a similar field of my study,

I no longer feel that sense of isolation. The atmosphere in the writing retreat made me to recognise that the journey is not solely between myself and my supervisor, but among a group of scholars with similar and differing academic fields.

Participant A is of the same opinion by declaring:

At times I really could not understand why my supervisor would require me to effect corrections repeatedly. After attending that academic writing retreat, it then dawned to me why paraphrasing is so necessary. I now no longer copy and paste someone else' text as is. I have since began to paraphrase whatever text I come across with. This practice has helped me a lot to improve in academic writing and my language has improved so immensely. Funny though, it is only at this stage that I realise why most learners obtain less marks in activities where expected to summarise given texts. Most normally shorten the given text instead of using own words to compile own story! Specifically, I then began to applaud my supervisor, because as a language specialist, reluctancy to paraphrase normally worried her, but not anymore!

5. Discussion

In consideration of the finding on increased throughput publication rate, findings of this inquiry revealed prospects of improvement in graduate attributes [17]. This was eminent as the department with enrolled postgraduate students graduated a double digit, this being the first accomplishment of its kind ever since students got enrolled for this programme. The glaring and wonderful experience of the outcomes of the academic writing retreat is that the greatest percentage of the postgraduate students who attended the event were able to work out their projects into finality. Postgraduate students had now developed a zeal towards this academic practice which had been previously regarded as tormenting and strenuous. Students were reported to have started to display some sense of ownership to an extent they would require consistent contact without even securing appointments with their supervisors [36]. This cluster of students was seen time and again collaborating and engaging as a group in a quiet space. This really displayed dedication and prioritisation of their Honours' and Masters' projects. Little have supervisors known that in the very specific year, a miracle was bound to happen! The department offering these postgraduate programmes made a huge mark by escalated number of graduands particularly for that academic year. This has served as a wake-up call for the enrolled first-year students in the programme. They would be heard commenting: How we wish such events could be organised at least thrice yearly. Indeed such propositions are correct with an objective to drain off pipe-line students who normally stay stagnant in the system due to experiencing challenges to write-up their research projects into completion.

It also emerged from gathered data that as scholarly attitudes had begun to be re-imagined, there were reported improvements in postgraduate students' academic writing pedagogies, with enhanced academic language. For novices in the field of research, to engage in the context of writing they are not familiar with has proved to be a real challenge and frustration [37]. As postgraduate students are faced with a huge task to produce dissertations, academic writing retreats have been discovered to assist a lot as change agents in scholarly attitudes. The level of academic writing coupled with enhanced language was discovered to have improved after postgraduate students were taken away to a 3-day event: academic writing retreat

[38]. Postgraduate students relayed that their supervisors commented on improved academic language when comparing submissions done after attending the workshops infused within writing retreat sessions. These students echoed out loud that they no longer felt in isolation as was the case before. They now freely practiced the strategy to consult whosoever supervisor not limited to the one allocated to. Further than that, collaborating and engaging with other students from the same field of study had proved to distress, thereby driving away that feeling of isolation. Students also reported that their scope on enhanced academic language seems to improve as they fully embark on paraphrasing whatever text they come across, thereby infusing own thoughts for the voice of the researcher to be heard.

6. Conclusion

Findings analysed and discussed in this chapter are noted to be in line with the theory underpinning this inquiry as the five core elements envisage organisational investment with accessibility and of seasoned mentors to support and professionally guide postgraduate students. This being in line with development of academic writing competence where writing pedagogies and goal setting are portrayed, thus re-building increased self-awareness, confidence and motivated research modalities. It is therefore needed to conclude and recommend that despite postgraduate students feeling isolated, academic writing retreats have been proven by this inquiry to be an exquisite strategy to iron out anxiety, improve throughput rate in research writing, with enhanced academic language, and ultimately working towards reduction of pipe-line students who stagnant the system.

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In conclusion, participants are highly applauded, through their robust engagements, this chapter has managed to table out findings coupled with recommendations thereof.

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The Extracurricular 1000-Point Project: A Descriptive Study of a Creative Activities Model for SQU Students in Oman

Naifa Bint Eid Bait Bin Saleem

Abstract

It is well established that college students need not only to learn subjects but also extracurricular activities. Sultan Qaboos University (SQU), in Oman, provides extracurricular activities for students in addition to academic activities. However, the administration noted that students were hesitant to join extracurricular activities. SQU developed a new system dubbed "1000" points in 2020 to increase student involvement. The goal of the current study is to define the 1000-point initiatives. To achieve the study goals, a survey was utilized to collect data and content analysis. SQU generally has 25 student organizations. Also, according to the report, the 1000-point program was created to motivate SQU students to join in extracurricular activities by tracking their involvement and classifying it into four categories. In order to increase students' awareness of the system and its use, the system has to be made mandatory.

Keywords: extracurricular activities, SQU, 1000 points, students' groups, creative activities

1. Introduction

Education is a multidimensional-integrated process that is not limited to classroom activities, as it also encompasses extracurricular activities that expand and increase the knowledge presented in the classroom, deepen students' experience, and provide opportunities for further growth in various fields.

An education that is connected to learners' goals, objectives, interests, needs, and experiences definitely impacts their behavior. Besides the importance of education and the subjects students learn, students also need well recognized universities and well established and accredited courses in high education, as well as extracurricular activities, which help them to practice and maintain their hobbies, discover their new talents, develop their existing skills, reduce academic pressure, and maintain a balance between their academic and nonacademic lives. This agrees with Ref. [1], who concluded that students experience high rates of pressure and mental illness during their university studies. Furthermore, they found that university friendship groups were more protective against distress than other social identities. Khasawneh [2] believes that

nonacademic activities are an important part of the university curriculum in its modern concept and are well-matched with the school. The importance of these activities is that their roles in building and refining students' personalities and many of their objectives are achieved through the activities carried out outside the classroom.

Patrick et al. [3] view the extracurricular activities as the activities that are conducted under the umbrella of the school but occur outside of normal classroom time and are not part of the curriculum. According to [4] student groups, ranging from cultural and social organizations (including fraternities and sororities) to student publications and athletic groups, provide an enormous range of extracurricular activities.

No	Name of the student groups	Administrative subordination
1	Al Kaleel Literary Group	DSA
2	English Language and translation Group	
3	Debate Group	
4	History and Archeology Group	
5	Community Voice Group	
6	Scouts Group	
7	Theater Group	
8	Photography Group	
9	Arts Group	
10	Music Group	
11	Technical Community Group	
12	Islamic Culture Group	
	Student groups affiliated with the colleges	
1	College of Agricultural and Marine Sciences Students Group (CAMS)	CAMS
2	College of Arts and Social Sciences Students Group (CASS)	CASS
3	College of Economics and Political Science Students Group (CEP)	CEP
4	College of Education Students Group (CE)	CE
5	College of Engineering Students Group (CEN.)	CEN.
6	College of Law Students Group (CL)	CL
7	College of Nursing Students Group (CN)	CN
8	College of Medicine and Health Science students Group (CMHS)	CMHS
9	College of Science Students Group (CS)	CS
	Student groups that belong to administrative units	
1	Innovation and Entrepreneurship Group	Center for Innovation and Technology Transfer
2	Postgraduates Students Group	Deanship of Postgraduates
3	Risk Management Students Group	Risk Management
4	Free and Open Source Software Group	Center for Communication Research

Table 1.
The names of the students' groups and their administrative subordination.

2. Background of the study

Inaugurated in 1986, Sultan Qaboos University (SQU) is the only public university in Oman. It has nine colleges, the Center for Preparatory Studies (CPS), and four deanships, all with students' societies or groups, which aim to provide opportunities for the development of conflict resolution skills, critical thinking, and ethical reflection [5], as well as to meet students' physical, intellectual, psychological, social, mental, and spiritual needs [6]. Furthermore, participation in student groups can alleviate academic pressure on students and assist them in practicing, discovering, and enhancing their talents and skills. Finally, these groups prepare students for the job market and motivate them to succeed academically and professionally. In addition to understanding common knowledge, students are also able to develop personal and social skills that contribute to the integral development of participants and to the development of positive attitudes toward themselves and others [7].

To achieve the above-mentioned goals, SQU provides students with extracurricular activities along with academic activities. To promote students' participation in such activities, SQU organizes them through a set of regulations, provides the required budgets, and urges colleges and units to add extracurricular activities to their semester plans. This bears on SQU's belief that extracurricular activities play an important role in preparing students for the job market, refining their skills, and equipping them with soft and administrative skills, such as speaking, communication, planning, and time management. SQU assigned the responsibility of organizing and supervising these extracurricular activities to the Deanship of Students Affairs (DSA). **Table 1** shows the names of the student groups with their administrative subordination (**Table 1**).

Table 1 shows that there are 25 student groups at SQU, divided into three types of administrative subordination: 12 groups are under the supervision of the DSA, 9 are affiliated with the colleges, and the last 4 are under administrative units.

3. The problem with the study

Although SQU arranged and kept improving the regulations of extracurricular activities regularly, the university administration noticed that students were reluctant to join extracurricular activities and student groups. This could be attributed to the fact, as Ref. [3] noted, that these usually do not earn academic credits, and students' participation is optional and voluntary.

It was clear that SQU students did not want to overload themselves with optional activities that did not involve any marks or evaluation.

Therefore, to improve and increase the number of students participating in extracurricular activities, SQU launched a new electronic system in 2020 with the purpose of arranging extracurricular activities. The system is called "1000" points.

4. The questions and the aims of the study

The current study aims to find answers to the following questions:

1. What is the 1000-point system?

2. What are the main categories of the 1000-point system?

3. Which colleges implemented the 1000-point system?

4. What are the challenges that face SQU in applying the 1000-point electronic system?

5. Are SQU students aware of the 1000-point electronic system?

6. What are SQU students' attitudes toward the 1000-point electronic system?

So, six objectives emerged from the above questions:

1. Introducing and clarifying the 1000-point system.

2. Introducing the main categories of the 1000 points.

3. Introduce the colleges that applied the 1000-point system.

4. Identify the challenges that face SQU in applying the 1000-point system.

5. Explore SQU students' awareness of the 1000-point system.

6. Explore students' attitudes toward 1000-point system.

5. Literature review

The topic of extracurricular activities has drawn much attention among researchers. According to Ref. [8], extracurricular activities have become an issue in higher education. In addition, Refs. [9, 10] pointed out that extracurricular educational activities were widely discussed in domestic and foreign studies; they believed that researchers studied students' attitudes toward extracurricular activities and the role that these activities played in their development. Researchers' interest was also drawn to the relationship between extracurricular activities and academic outcomes [5, 11]. In this sense, extracurricular activities have thus far been found to positively influence students' academic performance.

It has been found that students who engage in extracurricular activities have better academic results than those who do not [12], have higher GPAs, have lower absenteeism, are more connected to the school [13], and are more likely to persist through to graduation [14].

In fact, extracurricular activities at higher education organizations are often considered factor that develop students' skills and reduce academic stress. Considering the importance of these activities, universities aim to increase students' participation in them. An example of such an initiative was designed by Ref. [15] for electrical and electronic engineering students and later for students from all faculties of engineering at the University of Nottingham Malaysia (UNM), with the aim of encouraging students to participate in extracurricular activities, promoting lifelong learning, and facilitating the development of such skills. Further, Ref. [16] accompanied a study aimed at demonstrating the importance of extracurricular activities at Samara State University of Social Sciences and Education, as well as its impact on students' psychological readiness to work in inclusive education, as well as its influence on the

development of future teachers' positive attitudes toward inclusive education, tolerance, and individual creativity.

As for students' attitudes toward extracurricular activities in higher education, the literature actually shows that students hold a positive view in this regard. For an instant, Ref. [17] found that students of the Faculty of Economics and Business Administration, Madrid, Spain held a positive attitude toward extracurricular activities. They also found that such activities had a positive impact on students' entrepreneurial motivation and competencies. Their analysis demonstrates the effects of curricular and extracurricular activities on the entrepreneurial intention of university students. In the same vein, Ref. [7] found a positive attitude from the Tangier, Morocco student studying at a Spanish university. A total of 23 students who participated in volunteering activities were interviewed as part of the study. The study concluded that the sample valued the role voluntary extracurricular activities played in developing reflections that guide change in student beliefs, attitudes, and daily behaviors that ultimately lead to sustainability. Thus, the study recommends that students participate in social projects with peers and instructors, which can foster a supportive and trusting environment. Moreover, Ref. [18] suggest that extracurricular activities contribute to motivating the development of the intellectual domain of the personality and fostering strong qualities in students, and enhancing their interest in communication as a result. Additionally, Ref. [19] found that extracurricular activities affect students' skills development in undergraduate students at a public university in Bangladesh, where the students have acquired some skills as a result of participating in such activities, including social skills, communication skills, organizational skills, presentation skills, public speaking skills, and analytical skills.

In the current study, it is believed that decision makers at higher education institutions will turn their beliefs into practice if they believe in extracurricular activities. A study conducted by Ref. [20] about extracurricular activities and student-led activity clubs at higher education institutions to develop the social entrepreneurial competencies of graduates in emerging markets, found that decision makers have to conceptualize educational institutions not only as a place for learning but also as a place for practicing entrepreneurship skills for the next generation of social leaders in emerging markets. Furthermore, the researchers found that students who get exposed to practical activities during their studies have an advantage in the job market due to their greater employability. A university that invests in social entrepreneurship education develops leaders of tomorrow and increases scholarship opportunities through its alumni network.

6. Methodology and methods

This is a descriptive study that aims to describe the project and evaluate the electronic system for the 1000 points and students' perspectives on this. A survey was used to collect data, and content analysis was used to analyze them. The use of a survey helped the researcher to explore the view of the study community about the 1000-point electronic system. On the other hand, the use of content analysis helped the researcher to understand the full picture of the project, especially in the term of the meaning of the 1000 points, the main categories, and the challenges that face SQU in applying the 1000-point electronic system.

The content analysis is used to answer the following questions:

1. What is the "1000" points system?

2. What are the main categories of the 1000-point system?

3. What are the colleges that have implemented the 1000-point system?

4. What are the challenges that face SQU in applying the 1000-point electronic system?

The study depended on the document of the 1000-point system that was approved by the SQU Academic Council in 2018, as well as the committee reports signed in 2021.

The following two questions were answered through the survey sent to the targeted samples at the College of Education (CE) and College of Nursing (CN) and through the evaluation of the uploaded activities on the system.

1. Are the students at SQU aware of 1000-point electronic system?

2. What are the students at SQU's attitudes toward 1000-point electronic system?

7. Study community and sample

The community of the study consisted of the members of students Groups (CE) and (CN); however, the sample of the study was the students members who answered the survey and uploaded their activities on the electronic 1000-point system.

Table 2 shows the study community was 967 students from both students groups, with an overwhelming majority from CE students' group (857 = 89%), while the highest participation in the study, that is, those who responded to the survey, was from CN students' group (54 = 59.4%).

SQU selected two colleges for the project's pilot phase, one of which was a science college (CN), and the other a humanities institution (CE). Out of 967 students, 56 (5%) responded to the survey, which was given to the CE and CN student organizations. The survey was sent to both student groups *via* their email addresses. It consisted of six closed-ended questions and used a Likert 5-point scale. The participants were asked to

Study community		
No.	**Name of the students' group**	**Number of students**
1	College of Education Students Group	857 (89%)
2	College of Nursing Students Group	110 (11.3%)
Total number 967		
Study sample		
1	College of Education Students Group	2 (17.1%)
2	College of Nursing Students Group	54 (59.4%)
56 (5%)		

Table 2.
The total number of study community and sample.

No.	Variables	Number of students	
1	Gender	Female	41 (73.2%)
		Male	15(26.8%)
2	Academic year	1st year	2 (3.6%)
		2nd year	3 (5.3%)
		3rd year	14 (25%)
		4th year	22 (39.3%)
		5th year	15 (26.8%)

Table 3.
The details of the sample.

indicate how much they agreed with each of the five claims. The scale had five categories: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. To get authorization to distribute the survey, an email was sent to the assistant of each college with a link to the survey (**Table 3**).

Table 3 shows that 41 (73.2%) female students responded to the survey compared to only 15 (26.8%) male students. Additionally, the table reveals that among the respondents, first-year students had the lowest number (2 = 3.6%), while four-year students had the largest number (22 = 39.3%).

8. Results

8.1 The "1000" points system and its main categories

According to the documents of introducing the 1000-point system that was approved by the SQU Academic Council in 2018, the 1000-point system reflects the student's non-curricular performance into four categories, which are:

1. Knowledge: - 340 Ps.

2. Skills: - Total 190 Ps.

3. Service: - 370 Ps.

4. College-related items and miscellaneous: - 100 Ps.

Each main category has subcategories, and the total number of the main four categories is 1000 points. Actually, the system is a semiquantitative expression.

The electronic 1000-point system is a way for SQU students to claim and accumulate points from extracurricular activities they organize or attend while enrolled at SQU. In actuality, the system serves as a storehouse that aids SQU students in organizing, planning, and selecting the best extracurricular activities. Students from SQU will be distinguished from those attending other higher education institutions in the Sultanate of Oman by the certificate they will get. Only SQU offers this certificate and has this framework in place for higher education. Along with the scientific knowledge certificate, this confirms that SQU students possess the skills required for the job market.
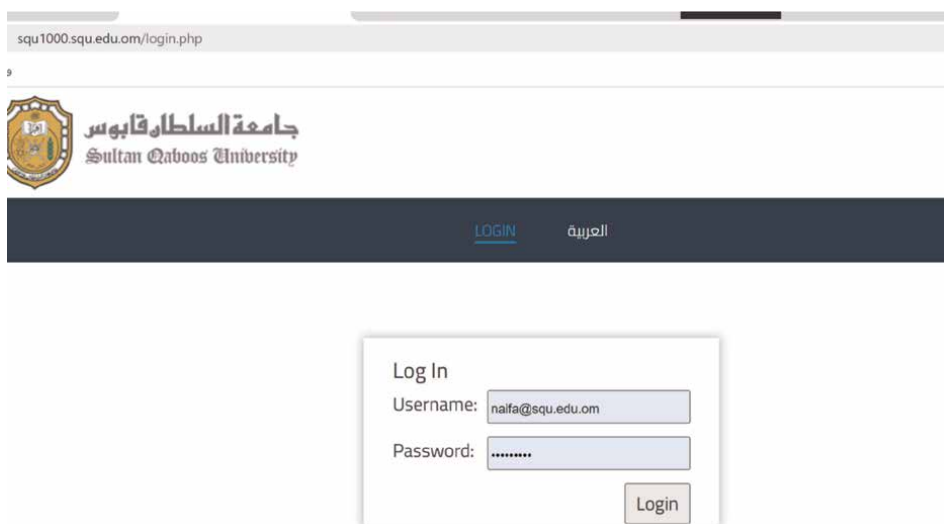
Figure 1.
Log in to the 1000-points project webpage.

Students and the administrative panel are asked to access the system's electronic page from the following address: https://squ1000.squ.edu.om/login.php (**Figure 1**).

- The 1000-point electronic system consists of three main screens:

- Home

- ADMIN PANEL

- Log out (**Figure 2**)

Each of the three main screens has sub-screens. **Figure 2** shows that there were 10 events scheduled for August 2022, 5 were still pending, and 15 had been approved.

8.2 The colleges that implemented the 1000-point system

In 2021, SQU issued decree number 994 to form the team of the 1000-point project. The decree determined the colleges that will be included in the implementation of the project in its pilot phase, those college are as follows:

1. College of Education (CE)

2. College of Nursing (CN)

The 1000-point system was piloted from spring 2021 to the end of fall 2022 at the above-mentioned colleges.
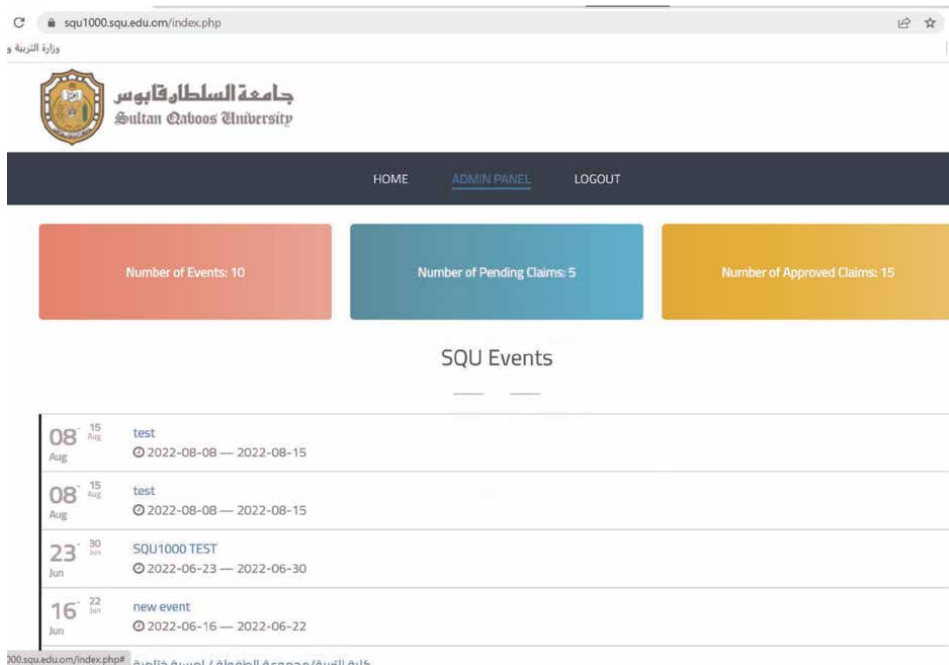
Figure 2.
The main screen of the 1000-point project.

8.3 The challenges that face SQU in applying the 1000-point electronic system

According to the reports received in Spring and Fall 2022, from the committee, two challenges face the implementation of the 1000-point electronic system:

1. Technical

2. Human

Following are the technical challenges:

- Some students fail to access the electronic system of the 1000 points,

- The slowness of the system,

- Difficulty in finding the specific event, as there is no field for sporting events, whether by college, date, or type of event,

- The student's group supervisor/assistant dean is unable to edit or delete any activity,

- There is no main window showing the number of students who have entered the system, or the number of students who have accumulated points in the system,

- The student's group supervisor/assistant dean's unable to know the statistics for each activity, and

- The electronic system of the 1000-point does not have a notification feature that might alert the student's group supervisor/assistant dean in case if a student is adding an event or claiming points.

The human challenges can be summarized in the following points:

- The company that built-up the system was from outside the SQU, this made it a bit difficult and slow for the 1000-point team in case they needed to modify or update to the electronic system of the 1000 points,

- The responses from the targeted students at CE and CN from spring 2022–fall 2022 were very low and they were not accepting the system easily,

- Most of the targeted students from CE and CN were in their final year, and they were busy with the practical training that took 4 days of a week,

- The 1000-point electronic system was launched at the beginning of spring 2022 semester, the targeted students at CE and CN were busy with registration and with adding and dropping subjects,

- The electronic system of the 1000 points is still new and has not been popular among the students themselves, and

- Unfortunately, the majority of SQU students do not care about the announcements that are published through email.

8.4 SQU students' awareness of the 1000-point electronic system

The report of the committee referred to above showed that the team used different methods to raise awareness among SQU students in general and particularly among the targeted students at CE and CN. The used methods were:

- Workshops for the targeted students and their supervisors at CE and CN,

- An introductory video about the project,

- A booklet prepared about the project, and

- Interviews with the team members about the project.

In spite of the committee members' efforts to raise students' awareness, responses from students in terms of attending workshops or uploading events on the system to accumulate points were low. The survey showed that only 39 participants (69.6%) were aware of the electronic system of the 1000 points.

8.5 SQU students' attitudes toward the 1000-point electronic system

Out of the 56 responses we received from both student groups, 50 (89.3%) said they were satisfied with the electronic system of the 1000 points, while 49 (87.5%) clarified that the 1000 points motivated them to participate in students' activities Moreover, 45 (80.4%) viewed the electronic system of the 1000 points as the repository that helped them to document their activities.

9. Conclusions

As we can see from the above results, 1000 points were designed to encourage SQU students to participate in extracurricular activities by documenting their activities and organizing them under four main categories. Furthermore, SQU connected the structure of the project with an electronic system that allows students to plan their activities under the four major categories and choose the points they would like to earn. The 1000-point electronic system enables each student to monitor his/her progress over the years while they are at SQU in the main categories mentioned earlier. During the course of a student's stay at SQU, all points earned from activities other than coursework and degree programs will count toward their overall grade point average. Each of the four main categories is divided into several subcategories that represent the ways in which a student can earn points toward meeting the requirements of the SQU graduate attributes. If a student undertakes multiple activities that fall under more than one category/subcategory, he or she must choose only one category/subcategory for that activity in order to collect points. Points can only be earned from one category or subcategory. When the graduate students obtain two certificates, one for academic achievement and one for extracurricular activities. The current study has found that SQU is the first to use this system in the Middle East. It is used nowhere else in the region.

As is the case with other extracurricular activities, this 1000-point program is a voluntary noncredit points system for students to accumulate as many points out of 1000 as they wish during their time at SQU. This is in agreement with Ref. [19], who defines extracurricular activities as those activities that take place outside the regular school curriculum and are usually voluntary and non-creditable. A pilot program has been set up at SQU, so that the system can be tested and modified before it is implemented across all colleges at the university. SQU was able to overcome all the challenges, especially the technical ones.

In order to increase students' awareness of the system and its use, the system will be made mandatory. Despite the small number of students who participated in the survey, results show there is acceptance from them of the electronic system. This program was developed by SQU after noticing students' reluctance to participate in extracurricular activities and to meet the market's growing demands for graduates who are multiskilled, especially in soft skills and management abilities.

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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 "Embracing Quality Assurance", "Educational Standards and Quality Assurance", "Evaluating Educational Access" and "Why Assessment?". 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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