Teacher Education in the 21st Century

Edited by Reginald Botshabeng Monyai

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Meet the editor

Reginald Botshabeng Monyai is a senior lecturer in the Department of Adult Basic Education and Training (ABET) and Youth Development at the University of South Africa. He holds the following qualifications: BA, BA (Hons), MA (cum laude), and PhD. He had a stint as a senior education specialist (English) and deputy chief education specialist before joining higher education as a theory of education lecturer. He is a co-editor of an education textbook: *The Educator as Mediator of Learning* and has published articles and book chapters in local and international publication houses. Reginald has been involved with Quality Assurance in the General and Training Band at Umalusi (Council for Quality Assurance in General and Further Education and Training in South Africa), and has quality assured English and Life Orientation since 2005.

Contents

Preface

Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning [1] corroborates the ethos of the Freedom Charter on education, which is that "the doors of learning and culture shall be open to all" [2]. This type of education, which has been promised to all, tends to be elusive to most learners because of gender discrimination, racial violence, long distances, learner-on-teacher violence, and a litany of other compromising factors. Teacher training is charged with a noble but onerous task of ensuring that all citizens reach the promised land of equitable quality education.

The book is divided into three sections: Section 1. Inclusivity in Teaching and Learning; Section 2. Teacher Development; and Section 3. Teaching as Practice. In Section 1, Dr. Monyai presents the introductory chapter, introducing the different chapters, in line with the ideal characteristics of the 21st century teacher. Professor John Fischetti from Australia argues that learning should be a "for all" phenomenon, instead of the traditional teacher-centred endeavour. Children, he contends, are citizens of the 21st century, and education must adapt to their needs now, not later. Education systems have to churn out teachers who are prepared for this century learners. He emphasizes the fact that we can achieve a seamless transition to unleashing the potential of these learners by preparing new teachers differently, instead of fooling them into believing that they are the sole custodians of knowledge.

Professors Ronnie Lidor and Yeshayahu Hutzler of the Wingate Institute, Netanya, Israel, address the inclusion challenge in teacher training. Basically, they contend that teacher trainees with disabilities should be enabled to take an active part in an existing teacher preparation program (TPP) in physical education to bring them to the same level as other students. There should not necessarily be special schools for them because the inclusion principle is that all learners must feel valued, in spite of ability.

Professors Jon-Chao Hong, Ming-Yueh Hwang, and Kai-Hsin Tai from Taipei discuss the virtues of benevolence, courtesy, and righteousness as analects that cut across three Asian regions, and have become a connecting fibre in teaching and learning. Essentially, citizens are taught these principles to ensure that no one feels left out both in the classroom and in life in general.

In Section 2, Professor Mona Holmqvist from Sweden argues that a major challenge for teacher education in the 21st century is to train good qualified teachers to teach and prepare the next generation of citizens. Teacher trainees should leave lecture halls ready for the classroom and pedagogic content knowledge cannot be overemphasized.

Professor Mamsi Ethel Khuzwayo from South Africa, in her chapter "Prospective Teachers' Role in the Construction of Authentic Pedagogical Content Knowledge," makes a finding that prospective teachers have the potential to develop, through proper training and preparation, pedagogical content knowledge, which is relevant

to real-life classroom experience. This pedagogical content knowledge should be commensurate with the demands of the 21st century educational landscape. The importance of teacher development is further accentuated by Dr. Cristina Maciel de Oliveira from Uruguay. She proposes a pedagogical program to address teacher personal and professional growth to promote relevant knowledge for teaching, which complements the kind of learner to be catered to in the 21st century classroom.

In the chapter "Modernization and Development of Arts Education: Spiritual and Worldview Alternative," Professor Olga Oleksiuk from Ukraine looks at spirituality in education as an important aspect of development. This is because education is value laden, and since each society has its own highest good, it must be kept in mind when training teachers that education should not only be about the subject matter but also about catering to the learners' souls.

Professor Oleg A. Donskikh from Russia reflects on the significant role of Aristotle's teaching practice for modern education by focusing on (1) the integrity of knowledge, (2) wonder as the beginning of knowledge, (3) oral communication as a specific way of creating knowledge, and (4) knowledge as a necessary element of way of life.

In Section 3, Dr Georgina Kedibone Gomba from South Africa succinctly discusses the challenges faced by educators in the implementation of continuing professional teacher development. She contends that continuing professional teacher development is necessary to guide educators' professional development; however, there are factors that impede educators from implementing it properly.

Given the prevailing circumstances around racial conflict, gender discrimination, bullying among learners, as well as learner-on-teacher violence, among others, Mr. Teboho Ngubane tackles a very timely topic on culturally relevant teaching. Teboho feels strongly that the South African curriculum does not speak to the culture of black people. The curriculum, including teaching methods and learning activities, he contends, does not reach out to the majority of learners in South African schools. As a result, teaching and learning are adversely affected.

Professional development is an important leg of teacher practice. This aspect is given prominence by Dr. Moleko Florah Teane from South Africa. Her chapter concludes that lack of content knowledge prevents teachers from designing activities or tasks that are learner centred and this leads to learners being passive, as well as poor performance.

From mainland China, Dr. Dora Ho, Dr. Mo Wang and Ms. Pan He tackle one of the roles of educators, that is, leadership. In their chapter, they focus on instilling leadership qualities among learners in their formative years. The practice of teacher leadership, they argue, has been emerging in the area of home-school committees and teaching research groups. The role of early childhood education in China is changing from mere babysitting to developmental nurturing. They contend that preschools should be seen as important institutions that help nurture and develop young generations for future leadership roles.

The book would not be complete without a discussion of information and communication technology in schools. Professors Marina Tsvetkova and Vladimir Kiryukhin, both from Russia, look at how teachers should be digitally competent. This chapter describes the structure of the advanced digital competencies of the

digital-age teacher based on the following digital competencies: life, social, and professional, and analyses the prospects for the development of digital competencies that society should include in teacher training.

Roy I. Morien from Thailand presents an economics analogy of logistics to argue that the Internet has proven to be both a major disruptive force and a significant enabler of research and education. Teachers and students need to achieve a high level of digital literacy to survive in today's fast-paced world. Teachers need to become proficient in the use of a variety of Internet-based tools for searching, illustrating, communicating, developing educational materials, and applying these in the teaching and learning space.

To close the section, Kirsi Tirri from Finland defines the purposeful teacher as a teacher with moral purposes and an ethical compass. The aims of the 21st century learning require purposeful teachers who actualize and model lifelong learning in their profession. This complements what Mochacha w'a Kgoale says about the role of teachers. They should be able to:

- guide students to full physical and mental maturity;

- help to develop critical thinking among students;

- encourage students to practise the truth and have self-respect [3].

The authors have brought immense and powerful experiences and knowledge from across the globe. Without them, this project would not have been what it has become. A big thank you to each and every one of them. The editorial team has been working around the clock to see to the completion of the book. A hearty word of appreciation to them too.

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Section 1

Inclusivity in Teaching and Learning

A Different Kind of Teacher for a Different Kind of School

John Fischetti

Abstract

The current 'old school' paradigm of teaching and learning is based on students sitting passively in rows, completing a required syllabus in the order they are told to do so, and with very little choice. Assessment systems sort children and reinforce the status quo, promoting learning for 'some'. In the 'new school' paradigm, schools will no longer be places young people go to watch their teachers work. They are learning centres, with student engagement at the forefront and personalized approaches focussing the instruction on the needs of the learner. In this dynamic learning environment, a new approach to classroom and school leadership is vital. The implications of learning for 'all' are profound for teacher education. Schools of Education mostly place our students in schools as they are, not in schools as they need to be. That means we are replicating and perpetuating obsolescence. In this chapter, I offer a conceptual rationale for the change ahead and propose an internationally developed framework for teacher education to cut across the silos of individual states and provinces governed by individual regulators but where practices may not necessarily be driven by the knowledge base. The work is centred on implementing a Deweyan philosophy of education. We need a different kind of teacher for a different kind of school.

Keywords: educational transformation, equity, personalized learning, school engagement, teacher education

1. Introduction

We are on the precipice of a massive transformation of schooling and the assumptions around the education of children in the world. The current 'old school' paradigm of teaching and learning is based on students sitting passively in rows, completing a required syllabus in the order they are told to do so, and with very little choice. Assessment systems sort children and reinforce the status quo, promoting learning for 'some'. Obsolete uses of the normal curve ensure success for about 30% at a time when we need approaches to enable the success of all young people. This assembly-line approach to schooling too often sorts students early on based on societal socio-economic gaps or on educators' failure to adapt the learning environment to meet individual learner needs. As an example, currently at least 40% of Australian students are disengaged from their schooling [1]. This disengagement is a failure for the individuals and a tragic loss of human capacity for a country to be relevant in the 'innovation age' where critical thinking, problem solving, adaptive reasoning and collaboration are core skills. In the 'old school' model, leadership is more management than transformative. And, in teacher and leadership education,

we are too often preparing our new teachers for the schools we are holding onto rather than for the schools we need.

In the 'new school' paradigm, schools will no longer be places young people go to watch their teachers work. They are learning centres, with student engagement at the forefront and personalized approaches focussing the instruction on the needs of the learner. Emerging virtual reality and artificial intelligence systems (immersive technologies) will require the reinvention of content delivery and leapfrog pedagogies to new frontiers of exploring and mastering ideas and knowledge. Students in this new school approach are at the centre of the learning as they accomplish the syllabus in ways that work for each of them. Assessment from here will be formative and used to modify instruction to meet the needs of learners in real-time. That is equity in action, with learning for all as a goal.

In this dynamic learning environment, a new approach to classroom and school leadership is vital. Leadership for old school approaches was primarily management with a mission statement. In new school approaches, leadership is a complex, dynamic empowerment process. The individuals who drive education forward from here—from the classroom to the school to the boardroom—will need a new set of skills to help them create the learning environments that empower every child for success and embrace the culture and expectations of the community as vital partners in the process.

Currently the traditional curriculum and the syllabus derived from it tend to drive teaching and learning. This leads to mostly teacher-focused schools. It reinforces compliance, passivity, old school assessments and rules. Alternatively, models such as Big Picture design starts with a focus on learner passion, community engagement and authentic evidence of student learning mapped to highly benchmarked national learning outcomes. This approach is creating a new role for teachers and schools.

The implications of these changes are profound for teacher education. Some of the content of teacher education is rooted in preserving syllabus-driven didactic teaching and passive compliance-based regurgitation of low level facts by learners. Schools of education typically place students for their practica in schools as they are, not schools as they need to be. That means we are replicating and perpetuating obsolescence.

In this chapter I offer a conceptual rationale for the change ahead and propose an internationally developed research-based framework for teacher education to cut across the silos of individual states and provinces. These silos allow teacher education programs to show evidence they each uphold local/national standards that appeal to regulators. However these silos may but may not promote current research or best practices in learning and teaching. The work is grounded in the premise and promise of John Dewey. Here we are 100 years later attempting to push back at massive industries of assessment and accountability and looking to finally see Dewey's philosophy and vision realized in the concept of success for all.

2. An overview of teacher education

College and university-based teacher education programs vary considerably by size, region, student body, nature and focus of curriculum, talent of instructional staff, status within home institution, balance of coursework and practice, relation with local district, and more. Some are excellent, some are good and experimenting with ways to get better, some are weak in some respects but decent in others, some are marginal and poorly run. The language of the current criticism of teacher education, at least the most public language, does not allow for this variability. Ministers of Education throughout the Western world continue to dismiss teacher education and put in place new policies and regulations aimed at changing the face of who

comes into and out of teacher education programs. The bottom-line message: Teacher education is a disaster [2].

How did we get to this so-called and falsely perceived disaster? In the United States, the evolution of teacher education as a professional endeavour has been a bumpy journey from requirements that teachers 'will bring a bucket of water and make their pens carefully' [3]. The current assumption for candidates coming from university-based teacher education is that they are fully-credentialed reflective practitioners who personalize education for all students and who serve as learning scientists from day one on the job. It was John Dewey who helped transform the assumptions of the role of a teacher in our society.

> *He must, if he is an educator, be able to judge what attitudes are actually conducive*
> *to continued growth and what are detrimental. He must, in addition, have that*
> *sympathetic understanding of individuals as individuals which gives him an idea*
> *of what is actually going on in the minds of those who are learning* [4].

2.1 A contradictory last century

Over the last hundred years or so of western culture, we have evolved as a society in contradictory ways to Dewey's vision of where education might lead us. The contradictory expectations of teacher education mirror the contradictions of the world itself. With scientific advancements from the airplane, the cure for polio and the Internet, human kind has never had more opportunities then the present time to control the world around us and to advance the causes or equity and justice, particularly through education. In that same last century, we saw horrible people do horrible things, including Stalin, Hitler and Pol Pot. The United States is the only country to have used nuclear weapons and today rogue regimes gas their own people. During this time Western schools, for the most part, have remained remarkably the same and the credentialing of teachers has been evolved in increasing regulatory requirements, including new entrance and exit processes and increased pressures on licensure bodies to ensure the positive dispositional nature and clear criminal record of initial teaching candidates.

The contradictions reflect a hurried culture as much of society is caught up in things that are fast and easy. Today the 'McDonaldization' of the 'fast' (food, news, social media, packages) has, among other things, led to increasing obesity and cardiovascular disease rates for the most vulnerable. Advances in research and technologies allow many of us to live healthier and longer lives than ever before, while Type II Diabetes is increasing in the most vulnerable populations in the west. In spite of billions spent on closing academic achievement gaps between the wealthiest and poorest among us, economic and opportunity gaps have increased. In addition, it led to an increase in short-cut teacher education programs fuelled by anti-government school sentiment and a for-profit mentality. Teach for American and its sister organizations in the UK and Australia are part of that massification movement. Now some want their teachers as fast and as cheap as their burgers, perhaps as long those microwaved teachers do not teach their own children.

Education in that 100 years has created a sorting pipeline where the system deliberately worked to ensure that about 30% of any of us who started school would be successful in our formal schooling and accomplish post-secondary degrees. Large testing regimens were developed to assist in the sorting, using the normal curve and new-fangled psychometrics as the basis of the decision-making process. For example, the Intelligence test (IQ) first developed in France, the Scholastic Aptitude Test (SAT) used to admit students to universities in the United States and the Australian Tertiary Admissions Ranking (ATAR) in Australia actually sort high

school graduates based on pre-determined assumptions of knowledge and future success. This is a perpetuation of the assembly-line education system. The system is still built on the assumption that 30–40% of us will finish school with the wrote memory skills and test-taking accuracy to be selected to tertiary education. It assumes another 30% or so of us will complete secondary school with 'good enough' literacy skills to be successful in the workforce and about another 30% will not survive the syllabus-driven compliance-based system, and either marginally drop in or just drop out. This last group tended to be destined to be the lower-level employees needed to support the materialistically-driven and profit-driven capitalist economy.

Failed educational policies that have been floating around between the United Kingdom and the United States have influenced the initial preparation of teachers [5]. They have impacted curriculum, instruction, assessment and teacher education. These include the implantation of higher standards for schools followed by high stakes assessments of those standards. They have included the infusion of so-called twenty-first century learning techniques, increased rigor and new tests for initial teachers upon entry and exit from their programs. Most of those policies, including the No Child Left Behind legislation of 2002 in the United States have led to increasing achievement gaps and further erosion of equity-based goals.

We have come to a time where there is almost nothing to 'do' to support one's family with a 'middle class' life if you are in a low-skill, low-education-related job. Most of these kinds of jobs have been or will be automated. In Hangzhou, China, in 2017 Jack Ma opened a market where no one except security works there while they are open. Through the app-based interactions, customers are automatically billed for their purchases as they put them in their shopping bags and head out the door. The store is staffed to stock shelves after hours, and that is it. This type of innovation is very exciting if you like new apps. It is very scary if you work in a store. The skillsets needed to be successful require a teacher education that is transformed to this new reality that there is very little to 'do' if you are not well educated.

We have a moral, social, economic and political obligation to get everyone to reach their highest potential and for them to have the opportunity to lead inspired lives. The overall happiness and health of our citizens is an economic savings in the level of social welfare that is *not* needed when people are well educated. Proper educational attainment gains directly influence the success for at least two generations beyond the current one in school. For young people today who are undereducated, there is very little to do. Continued economic and educational divides perpetuate social inequities. These economic gaps are widening and social upheaval threatens democracy. If anything has been a disaster (as discussed in the Rose quote above) in the education of teachers it has been the mixed goals we have for the education of our children. Are schools for promoting the common good? Are classroom teachers responsible for creating positive learning environments or for improving test scores? Should we differentiate for the needs or learners or have them conform to the lesson the way it is narrowly implemented? The 'disaster' Rose confronts above may be why many education students relay that they receive conflicting messages that our new teachers face as they enter schools in their required field experiences or practica. Many hear from experienced teachers that they should forget everything taught on the university campus and take on board mostly what they see and learn in the 'real world'. Yet, other novices report that they are involved in amazing partnerships with schools, universities and communities committed to equity and student engagement in learning connected.

There have been more than 100 reports critiquing teacher education in Australia since the 1970s and almost as many in the United States and the United Kingdom. These reports led to new tests and more accountability standards and measures of teacher behaviours.

Today we have a regulated profession that has not necessarily changed the content of what is taught as much as developed a 'tick box' compliance process [6].

We need a major revamp of teacher education from the inside out that actually changes the model to provide all children with the education that is right for them.

2.2 The implications for schooling, teaching and teacher education

When I was in school in the 1960s and 1970s, teachers typically had one lesson plan for each class, one textbook, one method of note delivery (chalkboard), one pedagogical approach (they talked), one style of seating arrangement and one discipline strategy for the whole class. My classmates and I were expected to adjust to the teacher and the plan not the other way around.

'Differentiation' at that time was primarily for those identified with moderate to profound special needs, who were typically taught by special teachers in special classrooms down separate corridors of the school [7].

This was assembly-line education. Many of us did quite well. Some of us dropped in. Some of us dropped out. It was understood that if you worked hard after you left school, even if you dropped out, you could anticipate a pretty good job in the mill, the mine or the shop.

Teacher education grew out of these assumptions of 'training' for the assembly line in a two dimensional (2D—'sit and git') education world.

For too long schools have been places young people go to watch their teachers work. They have relied on a deficit model of learning and teaching [8]. They have emphasized conformity rather than personalization. And today, in many parts of the world, they still mirror factories while the 3D printer is replacing the assembly line.

Scientists are now aware of at least 10 dimensions [9] that we must comprehend in a very dynamic, collaborative, global innovation age. Although many of us performed well in the 2D (sit and git) model, those who were unable to adapt to it have very little to do today.

Many jobs available in the past for those who did not finish school have been outsourced or automated, and more will be in the near future. We cannot afford economically or morally to continue a 2D mentality for schooling [10].

2.3 The global learning equity network

Current standards for initial teacher preparation across the western world are remarkably the same [11]. They are really organizers of evidence that new teachers and their programs must assemble inside these agreed-upon categories. Unfortunately, they are built on and support a model of learning and teaching that is nearly obsolete. We actually have very little evidence that graduates of teacher education programs use what is taught to them 3 years into their teaching. This has to change [12] .

In response, academics and educators across New Zealand, Hong Kong, South Africa, Canada, the United Kingdom, the United States and Australia have devised five new guiding questions or frameworks for teacher education [13]. They helped us create a global conversation to benchmark teacher education internationally rather than in individual states, provinces or nations.

The frameworks evolved from conversations with leading scholars in the interdisciplinary fields.

The Global Learning Equity Network (GLEN) aims to reinvent teacher education in the field of learning science and reinvigorate the profound role teachers play in addressing issues of equity and student success.

Our cloud-based Learning Equity Research and Resource Centre [14] hosts current and leading resources in scholarly and applied research on learning equity in emerging knowledge bases such as:

- psychology

- neuroscience

- cognitive science

- technology

- equity

- special education

Most teacher education programs in the world are remarkably the same. Programs are regulated and states, provinces, shires or countries in which the states for example create organizers or standards for which teacher education programs are accredited and where panels and external reviewers determine that they are actually going well. The issue with this form of validation process is programs are surprisingly very similar right now. In an effort to please regulators by complying to standards, the scope and the sequence of teacher education are more the same than different.

The standards have created a vertical set of silos in which programs operate in isolation but with remarkable similarity and with little evidence of embedding best practice. We propose a new way to think of an international scheme for teacher education with horizontal research-based conversation across the world. Because of the imperative that we get education right for every child and that each learner is successful, the relevance of the content of teacher education programs more than mandated entrance and exit requirements from above is vital. The fears of many policy makers are related to the 'quality' of who is coming into teaching and the level of readiness of those exiting programs. The amazing knowledge bases that are driving a whole new approach to learning sciences outside of education are almost silent in the regulator mandates and new screening requirements put in place to safeguard from 'dummies' entering teaching. GLEN has developed the following frameworks to promote the two most important aspects of schooling in a free society—learning and equity.

2.4 Five new frameworks to drive the reframing of teacher education

Our resource centre facilitates the evolution of international frameworks to guide teacher education toward *learning education*. Each of our GLEN frameworks provides the latest key research for that area, as well as examples of how this research has already been implemented in an educational context, and a library of related and engaging online content [15].

The frameworks themselves are based on a synthesis of the major domains in the field. They aim to guide teacher education programs around the world to recalibrate their current models in light of new evidence in the following areas:

2.4.1 Where do children live?

The context and environment in which children live is paramount to their success as learners in formal school settings. Mostly middle class new teachers often lack deep understandings of culture, family, diversity and community dynamics.

The most innovative teacher preparation programs embed direct community and family involvement early into their education.

2.4.2 How and when do children learn?

The work in neuroscience, psychology, indigenous cultures, the arts, technologies, equity, learning differences, etc., is all forming a new transdisciplinary area of 'learning sciences'.

We have just begun to understand learning and its many forms and contexts in light of new innovations. Most of the new learning from brain research, including the recent knowledge about toxic stress [16], adolescent development [17], the importance of physical movement, creativity and the impact of technologies has not yet made its way to teacher preparation [18, 19].

2.4.3 What should children know and be able to do as a result of schooling?

In the past 20 years, schools have often been pressured to become testing centres rather than leaning centres. To be successful in the innovation age, young people need exposure to a dynamic curriculum that helps them master traditional literacy and numeracy skills inside of an engaging problem-solving environment that focuses on students finding their passion, developing critical thinking, enables creativity, and fosters their innate curiosity for learning.

Teacher education should go way beyond the syllabus for each country and foster the newest and best thinking about knowing and doing in a global context. Students in Sydney are not only in competition with students in Brisbane and Perth, but also with students in Mumbai, Shanghai and Boston.

2.4.4 Why is equity such a vital component for the common good?

A focus on equity (fairness) is paramount to overcoming injustice, providing social cohesion, improving living standards and protecting democracy. Most teacher education programs currently isolate equity issues inside of introductory courses rather than wrap learning with equity throughout their program designs.

Most of the pedagogies taught to new teachers are about 'fixing' student deficits rather than building upon the amazing capacity and evolving cognitive capacity of every child.

2.4.5 Who am I as a learning and equity leader?

Whom teachers are and how they behave is one of the most underrated competencies of learning to teach. Caring, flexibility, resilience, respecting diversity, overcoming inequities, advocating for children, leadership and positively communicating with colleagues and parents are all as vital as content knowledge and pedagogical prowess.

Many new teachers are strong in content, but the social aspect of their job may not be developed. It is possible for someone to meet the current standards but fail children.

These frameworks might be the grounding across the various standards in states and nations to guide learning and equity and to build a sound way forward with the world's best experts informing the process.

Implicit in these frameworks is a new approach to teacher education. I propose that teacher education programs align with an international set of frameworks and

backwards map their research informed curriculum, instruction and assessment practices with national, state or province standards. Rather than being dictated to by policy makers, teacher educators can claim the knowledge base they contribute to and expand the interdisciplinary connections to the related fields that empower candidates across the five GLEN frameworks. This would be a new kind of teacher education built on current and future knowledge and prepare candidates for the schools we need rather than the ones we hold on to. This would indeed be a different kind of teacher prepared for a different kind of school.

3. Conclusion

When Copernicus posited, and Galileo confirmed the Sun as the centre of the solar system and that the Earth revolved around it, many learned people of the time considered this heresy. The notion that the syllabus can be accomplished by adjusting it to the passions and needs of the learners is possibly considered heresy today. To some, the idea that passion and student wellbeing help drive intellectual curiosity and lead to building cognitive capacities seems impossible at worst or unrealistic at best. However, the goal of learning for all is to design schools based upon and built around the needs of learners rather than the syllabus or the needs of adults. This is the direction we are heading led by great educators around the world who have adopted promising school designs. If we stay on top of the technological advances, smart tools can help us differentiate in powerful ways. By preparing new teachers differently, we can provide a bridge from old school to new school without a lost generation of disruption.

When I talk to parents of school age children, they often complain that some students on some days get different assistance from their teachers. They tell me this is not fair. Actually, it is fair, it is not equal. Equity is about giving each child what they need, when they need it. With fairness one of the core values of progressive countries around the world, and as we collectively address the inequities of the past, new school designs and new teacher education designs may be part of our journey to fairness. All of us deserve a fair go as a child, not a predetermined norm-reference box we are put in. Secondary school graduates this year around the world are the first generation of learners born since 2000. They are twenty-first century natives. We can no longer wait to embrace change. It is already here. We can do this.

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Conflict of interest

None.

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Including Students with Disabilities in a Physical Education Teacher Preparation Program: An Institutional Perspective

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Abstract

The increasing number of students with disabilities who have the goal of becoming a teacher in either elementary or high school is one of the challenges we are currently facing at the academic colleges of education in Israel. In this chapter, we address the inclusion challenge, namely how we have taken up the challenge to modify one existing teacher preparation program (TPP) in physical education (PE) to enable students with disabilities to study at the same level as the other students who are enrolled in the program. The chapter is composed of four sections. In the first section, we introduce the term *inclusive education*, elaborate upon its concepts, and highlight a number of developmental phases associated with this term. In the second section, we present the theoretical background and the practical frameworks of an inclusive pedagogy. In the third section, we describe a number of actions taken in one college that enabled students with disabilities to enroll in a PE TPP. In the fourth section, we conclude our discussion and provide a number of ideas for future research, in order to strengthen the understanding of how to integrate students with disabilities in PE TPP.

Keywords: inclusion, students with disabilities, teacher preparation programs, physical education

1. Introduction

Inclusive education is based on the fundamental right of all learners to quality education that meets their basic learning needs, encourages their personal development to the fullest extent, and considers the diversity of backgrounds and abilities to be a learning opportunity rather than a barrier [1]. Inclusion as conceptualized today has its roots in the "Normalization" movement of the late 1960s and early 1970s, which advocated community inclusion primarily for individuals with intellectual disability [2, 3]) and their subsequent "mainstreaming" or "integration" into the general education systems. The main disadvantage of "integration" was that the physical placement was not accompanied by organizational support within the general schools or by significant changes in its content and teaching practices. The term "special education" was replaced by the term "special needs," but another gap had yet to be bridged—that is, of the philosophical change from welfare to human rights-centered services [4].

The development of inclusive education was highlighted by the Salamanca Declaration on Education for Children with Special Needs [5], which asserted that inclusion in regular schools is the most effective means of combating discrimination, supporting education for all, and building an inclusive society. More recently, the United Nations Convention on Rights of Persons with Disabilities (CRPD) [6], where in Article 30.5 the rights of children with disabilities to be provided with PE as well as informal sport activities are clearly articulated, has been mandated and as of 2017 signed and ratified by 175 nations [7]. Specifically, Article 30.5 of the CRPD mandates (a) facilitating participation of individuals with disability in mainstream (inclusive) sport events; (b) ensuring the development, training for and participation in disability-specific sporting and recreational activities; (c) ensuring access of individuals with disability to sport and recreation venues; (d) ensuring that children with disabilities have equal access with other children to participation in play, recreation and leisure, and sporting activities, including those activities in the school system; and (e) ensuring the provision of (mainstream or specific) sport and leisure services to individuals with a disability.

In adhering to these specifications, the CRPD is very clear about ensuring participation in both inclusive and separate types of physical activities across the life span, with a particular emphasis on schoolchildren. More recently, the UNESCO published a statement acknowledging that inclusive, adapted, and safe opportunities to participate in PE must be provided to children with disabilities [8].

The knowledge base for including children with disabilities in adapted PE, where children with disabilities are educated within regular or separate classes utilizing adapted frameworks of curriculum development and teachers' practice, has evolved since the 1950s, mostly in the United States [9]. Based on the experience gained among teachers and scholars, theoretical and practical recommendations have been developed and practiced in many schools across the United States and Canada, leading to the establishment of the International Federation of Adapted Physical Activity (IFAPA) in the mid-1970s [10, 11] and the research journal Adapted Physical Activity Quarterly (APAQ) in the mid-1980s. With this support of international governing bodies, and the formation of a theoretical knowledge base (e.g., [12–14]) and practical guidelines (e.g., [15, 16]), the trend toward inclusive education has increasingly been advocated by educators and scholars worldwide (e.g., [17]).

Inclusive pedagogy is understood in this regard as enabling all children to participate in school and to follow normative goals [18]. Moreover, according to Loreman and Deppeler [19], it is not enough to accept children with disabilities in a general class; they are expected to be welcomed and wanted by their peers and the staff, including the teachers and administrators. This makes the issue of staff attitudes extremely important, and the training of teachers toward inclusion an essential and mandatory practice.

Indeed, even if teachers demonstrate good intentions, they often feel inadequately trained to meet the demands of an inclusive classroom. PE teachers have been documented as being particularly vulnerable to safety and control issues associated with including students with disability in their classes (see [20]) and have been reported to exhibit less favorable attitudes toward the inclusion of students with physical, sensory, or intellectual disabilities (see [21–25]). No specific frameworks for promoting inclusive education within the PE domain have been proposed, but the general principles for teachers' empowerment proposed by the European Agency for Special Needs and Inclusive Education [26], and based on a multinational European Union's Teacher Education for Inclusion (TE4I) project, provide good starting points. The TE4I report [27] on challenges and opportunities of inclusive education states that "the vision of a more equitable education system requires teachers equipped with the competences needed to meet diverse needs" (p. 78).

2. Theoretical background and practical frameworks of an inclusive pedagogy

To facilitate better groundwork and commitment of the educational staff, a number of frameworks have been proposed for structuring the main pillars of the inclusive approach. For example, Downs [28] utilized a Delphi approach, and semi-structured conversations with a range of practitioners and policymakers, in looking for common words that were used across participants responding to questions such as "What does inclusion mean to you?" Downs generated seven pillars of inclusion, access, attitudes, choice, partnerships, communication, policy, and opportunity, and provided an online webinar-type resource and associated checklist for the use of organizational stakeholders specified for each pillar.

Downs' framework was adopted by Woods [29] for introducing an inclusive swimming framework. While Downs' seven pillars may be very helpful for community organizers, club managers, and sport association officers, they are less applicable to the educational framework. However, some of Downs' pillar descriptors are also presented within one of the most cited models—Loreman's seven pillars of support for inclusive education [30]. In the following part, we describe these and additional pillars and their relevance to inclusion in PE.

2.1 Loreman's pillars

Loreman's seven pillars [30] are an example of how successful inclusion should be implemented. The analogy of "pillars" has been selected to reflect different contributing factors, which are interdependent and essential, for securing effective inclusive education. In the following sections, these pillars are outlined, with an emphasis placed on their implementation in PE. The seven pillars are as follows:

2.1.1 Positive attitudes

Negative attitudes toward inclusion are associated with reduced achievement expectations from participants with disabilities and, particularly in PE, a tendency to facilitate their absenteeism, leading to a significant number of students with disability who partially or even completely avoid participation in PE [20]. Changing the negative attitudes of PE teachers toward inclusion is challenging due to a number of reasons, including but not limited to a lack of knowledge on disability, an apparent conflict between the wish to increase performance of the whole class and to support the individual with disabilities, the environmental constraints on attention when teaching in an open space, and the need to provide additional safety precautions to reduce injury risk [31].

2.1.2 Supportive policy

The international supportive policies with regard to inclusive physical activity have been discussed earlier. However, in the United States it is up to every state—and sometimes even the educational region—to specify the regulations supporting the development of inclusive frameworks and enabling increased participation of youth and adults with a disability in physical activity. The case of a high school wheelchair athlete, McFadden versus the Howard County (Maryland) Public School System, is an example of a struggle for a human rights supportive policy led by a student with a disability and her mother, requesting that she be entitled to compete against athletes without a disability on the same track and at the same time. The success of this case led to changes in interscholastic sports regulations in many regions in the United States [32].

2.1.3 Evidence-based school and classroom processes

A range of supportive and adaptive processes exist that facilitate teaching and training students with disabilities within inclusive physical activity conditions. Such processes have been labeled with acronyms, for example, TREE, teaching style, rules, equipment, and environments modification [33]; SEMA, Systematic Ecological Modification Approach [34]; ETAT, Ecological Task Analytic Teaching in the United States [35]; and STEP, space, task, equipment, and people [36], and are used to support knowledge-based rather than intuitive decision-making when planning and performing inclusive activities.

However, only limited research has been conducted thus far on the abovementioned processes in support of one or another adaptation process and/or modality. One of the very few examples of such research is the study of Kalyvas and Reid [37], who measured performance and satisfaction of different groups in school-aged children, with and without disability, who participated in Newcomb volleyball with and without additional adaptations (e.g., using a large balloon-type ball or serving from a shorter distance), and found that adaptation improved performance in both groups of children—those with and without a disability—and that satisfaction of the children without a disability was related to their age. The older children were less satisfied with the adapted conditions. Further research is warranted to address evidence-based adaptation practices.

2.1.4 Flexible curriculum and pedagogy

Contemporary educational institutions have been criticized for presenting too much teacher-centered instruction and for striving to demonstrate norm-referenced "outcomes" rather than educational processes [38]. Within this frame of reference, providing support and adaptation coming from the flexible knowledge base of practitioners specializing in teaching students with disabilities can contribute to the class climate and benefit educational processes within the class, such as engaging with small groups and peer tutoring [39]. The specific practice of opening supportive and adaptive practices for all has been acknowledged as the universal design-for-learning approach [40], which has been developed as an adaptation of the universal design approach in architecture [41], and has been recommended for inclusive PE [42]. Basically, this approach requires (a) providing multiple representations of content, for example, utilizing visual teaching aids in addition to verbally explaining and physically demonstrating; (b) providing multiple options for expression and control, such as using self-determined goals and performance criteria in addition to normative criteria; and (c) providing multiple modalities for engagement and motivation, such as peer modeling and cooperative play, in addition to competition.

2.1.5 Community involvement

Schools are a societal instrument; they provide knowledge, competencies, and skills required for later community involvement and for engaging in a productive lifestyle. For this purpose, schools are expected to connect with the community and embrace cross-lateral links [43]. Parents of children with disability, athletes representing sport clubs for individuals with disabilities, and additional community stakeholders may contribute to children's understanding of and attitudes toward inclusion. The Paralympic School Day activity or Special Olympics School demonstrations are good examples of such community involvement and were found to have a positive impact on attitudes (see [44, 45]).

2.1.6 Meaningful reflection

Reflective practices are among the most important tools for teachers' self-development and include writing journals and portfolios and using systematic observations and field notes [46]. However, there are very limited means for utilizing such tools within the inclusion framework, particularly in the PE domain where disabilities are not limited to learning and/or behavioral deficiencies but rather to a broad range of physical, sensory, and mental issues that may significantly change performance goals, patterns, and contexts. For example, a student with a neurologic impairment of the lower limbs, who may be able to walk with crutches, might need a racing wheelchair in order to conform with both the developing aerobic endurance goals and rules for participating in school track competitions. Therefore, the teacher's reflections should consider such individualized activity and participation modification options.

The Systematic Ecological Modification Approach (SEMA; [34]) is a task-analytical teacher's reflection tool, providing guidance throughout the journey of inclusive practice. This approach (a) considers goal-setting with regard to the three domains of the World Health Organization's [47] International Classification of Function and Disability, (1) functioning (having the capacity to perform movement tasks), (2) activity performance, and (3) participation (in the activity tasks); (b) analyzes expected performance criteria for the typical student; (c) estimates the differences observed in the included student's performance and the potential reasons for the observed gaps, which may be considered as both personal and environmental barriers; and (d) proposes adaptations of the task performance patterns, environmental conditions, equipment used, rules of the activity, and/or instruction modalities. Utilizing such a systematic reflective tool has been found to reduce the likelihood of the biased intuitive decision-making often utilized by teachers and administrators to reduce complexity during the inclusion practice [48].

2.1.7 Necessary training and resources

Due to the high variability and specificity of different students with disability, many teachers feel inadequately trained and not competent enough to meet the demands of inclusive education [19, 49]. This is common also in the case of PE [50], and therefore pre-service or in-service training is necessary. Such training requires not only delivering factual information and knowledge about students with disabilities but also being focused on developing a positive attitude toward the inclusion process.

According to social learning theory, attitudes are strongly related to self-efficacy—that is, the perception of control and competence with regard to pursuing an activity toward a phenomenon—and therefore inclusion training should develop a sense of either physically or virtually experiencing inclusion contexts and controlling their outcome. In a recent article, Block and associates [50] reviewed and summarized a number of teacher preparation processes, including (a) providing simulations of disability conditions while attempting to perform various physical activities; (b) infusing disability-related contents across core curriculum studies; (c) participating in on-campus and off-campus practicum sessions; (d) obtaining online courses for those who lack the time to attend frontal classes; and (e) confronting participants with decision-making situations while in group settings, rating potential responses, and discussing the choices for reducing bias and facilitating informed decision-making.

2.2 Inclusive assessment

In addition to the seven pillars postulated by Loreman [30], an additional context of teachers' practice appears to be of significant importance—students'

assessment [51]. Assessment is important for the school system as a way of screening students' performance at different schooling levels and as a buffer for moving between systems [52]. However, assessment also provides a measure for self-evaluation, supporting the student's motivation for learning [53]. School assessment typically includes both quantitative and norm-referenced data, which are not helpful in the case of inclusive education, where individualized motor patterns of the students with disabilities are not expected to conform to the quality criteria expected in the normative population. For example, quality criteria recognized in the test of gross motor development are based on patterns which may not be meaningful for children with impaired or amputated limbs [54]. Furthermore, normative scores utilized for assessing physical fitness criteria are not applicable to individuals who may not even have the capability to propel cycling equipment or move their legs on a treadmill. Therefore, teachers are challenged with the task of developing individualized baseline-referenced tools which can be utilized for students with and without disabilities, as well as for teachers.

While developing an assessment framework, educators need to be aware of the following recommendations for policymakers and practitioners [55]: (a) assessment procedures should be relevant and adapted to accommodate students' special needs; (b) resource allocation should not only be based on initial assessment but also on ongoing assessment; (c) assessment should not only measure deficits, but also strengths, and should encourage service provision within the general framework; and (d) curricula and programs should encourage learning process-based goals and needs rather than content-led and/or driven goals.

2.3 Mentoring

One way to cope with the uncertainty about curricula and practice created through the inclusion process is to receive supervision or mentoring from experienced professionals. Processes of this kind may include dialog sessions, reviews of situations, decision-making scenarios, and work plans, providing the supervised or mentored teacher with guidance, advice, and sharing of responsibility [56]. Typically, mentors could be experienced teachers with hands-on experience, who can answer questions, suggest alternatives, and evaluate choices together with the mentee and support his or her reflexive process. However, in most countries the number of such professionals is very limited. Furthermore, research from Turkey, where an inclusion reform has occurred in education services during the last two decades, reported a negative correlation between attitudes toward inclusion and age or time teaching [57]. This has been suggested as reflecting the lack of administrative and societal support for inclusion prior to the reform. Therefore, another source for mentors is warranted—this could be individuals with a disability who provide their life experiences from an expert position—and therefore in addition to coping with a lack of knowledge, they also support reframing attitudes [58].

2.4 TPPs in PE

While teacher education for inclusion is a "hot topic," instigating various projects, reports, and discussions (e.g., [26]), very little has been documented thus far about inclusion of teachers with disability within TPPs and particularly in PE TPPs [59, 60]. A content analysis of the literature on inclusion processes of students with special needs in TPPs indicated that most studies have focused mainly on two aspects—attitudes toward inclusion and the changes/modifications required in TPPs so that the special needs of the students are considered. For example, in one study [61], 125 pre-service elementary, secondary, and special education teachers

were interviewed in order to identify aspects of university coursework and assigned field experiences that contribute to their ability to implement inclusion. One of the main findings of this study revealed a lack of consistency across TPPs within one university and a disconnectedness between the knowledge of inclusion as presented through the university coursework and the students' real-world field-experience observations of inclusion.

In another study [62], one TPP that prepared both single- and dual-certification master's students to teach in inclusive classrooms was reviewed. The researcher reviewed the context of the program in which, and for which, the program was designed, explained how the program was developed, and provided a description of the program.

Unfortunately, only very limited evidence exists thus far for examining aspects of inclusion processes of students with disabilities in TPPs aimed at preparing these students to be PE teachers. Furthermore, in spite of considerable research and a number of recent systematic reviews on attitudes and perspectives of PE students and teachers toward inclusion [63–68], "there is a need to bridge the intention/behavior gap that still exists in the research on inclusion of children with disabilities in PE" ([68], p. 330).

3. Inclusion in a PE TPP

The development of TPPs began in Israel more than a hundred years ago, with a gradually increasing volume and content of teachers' education, instructional skills, and competency. TPPs in PE were established in the mid-1940s as a 1-year program and gradually developed into a 4-year preparation program.

3.1 Teacher education in Israel: a dual system of preparation/training

TPPs are offered by Israel in two types of higher-education institutions—universities and academic colleges of education. That is to say, a dual system of TPPs exists in the country. In TPPs offered by the universities, students are required to study at least one major discipline (but no more than two) and only then complete their teaching certification studies. The students typically complete their undergraduate disciplinary studies in 3 years, earning a Bachelor of Arts (B.A.) or a Bachelor of Science (B.Sc.), and then take part in the pedagogical/teaching program for an additional 1 or 2 years of study. Upon completion of the pedagogical/teaching program, the students are awarded a teaching certificate, which enables them to teach their discipline/s in high schools. There is no link between the disciplinary studies and the TPP.

In contrast to TPPs studied at the universities, in TPPs offered at the academic colleges of education an emphasis is placed on a strong connection between the disciplinary studies and the pedagogical studies. The students learn their major discipline/s (one or two) as well as the pedagogical studies in each year of the TPP. The length of the TPP at the academic colleges of education is 4 years, and the integration between the discipline/s and the pedagogical/teaching studies already begins in the first year of the program in most of the colleges or in the second year of the program in others. In essence, a strong link between the disciplinary studies and the pedagogical studies can be observed in TPPs offered by the academic colleges of education. In fact, students who choose to study at the academic colleges of education are *required* to take pedagogical/teaching classes, even though some of them do not have an interest in becoming teachers in the educational system in Israel. Upon completing the 4-year programs offered by the academic colleges of

education, the students earn a Bachelor of Education (B.Ed.) degree and receive teaching certification, which enables them to teach in elementary schools in Israel. In a number of disciplines (e.g., the arts, dance, PE), the teaching certification authorizes the students to teach in high schools as well.

The close connection between the disciplinary studies and the pedagogical studies at the colleges of education has a number of advantages but also one major limitation. The following are two advantages for the imposed link between disciplinary and pedagogical studies:

a. By taking classes in their selected discipline/s and classes in pedagogy across the 4-year program, the students are provided with a unique opportunity to integrate the different types of knowledge emerging from the various classes. Students can use concepts, ideas, and themes learned in the disciplinary classes and apply them in the pedagogical classes. When studying in the disciplinary classes, they can also further develop some of the ideas they learn in the pedagogical classes. It is assumed that the transferability effect across the different classes taught in the TPP will thus be strengthened.

b. Lecturers in the two types of studies—disciplinary and pedagogical—can together plan some of their classes and provide the students with examples of how information from one class (e.g., a disciplinary class) can be related to elements of information discussed in another class (e.g., a pedagogy class). In addition, in a number of classes a co-teaching model can be used. For example, a class can be taught by an expert in one of the disciplines, and another experienced teacher can provide the students with real-world instructional examples of how knowledge from the specific learned discipline can be effectively implemented in actual classes taught in school settings.

However, there is also one potential limitation in the concept of linking the disciplinary studies to the pedagogical studies. Since the academic colleges of education are teaching-oriented, and their main objective is to prepare students to be capable and effective teachers in schools, a great deal of emphasis is placed on the pedagogical studies, and in turn the disciplinary studies may play a secondary role in the TPPs. In order to achieve the goal of producing good teachers, it appears that the main objective of the great majority of classes taught in TPPs offered by the academic colleges of education is to increase the pedagogical knowledge of the student rather than the knowledge of the specific discipline/s. By placing greater weight on the pedagogical studies, students can become teachers who know "how to teach" but may be lacking in fundamental disciplinary knowledge, namely, "what to teach." They will probably develop an arsenal of pedagogical devices/tools that they can use when teaching in schools but may lack a deep understanding of the scientific foundations of the selected discipline/s.

3.2 An institutional approach to inclusive teacher's training

With the increased implementation of inclusive education, teacher educators have also been challenged to make changes in their programs in order to prepare students to educate diverse learners. In this respect, if students with disabilities indeed study in TPPs, then TPPs should also be modified according to the special needs of these students [69]. In Israel, governmental bodies have made a number of attempts to adopt the policy of inclusion. For example, in the year 2002, the Israel Knesset (the unicameral national legislature of Israel) approved the Integration Law (see [70]). One of the implications of this law is that students with disabilities

can be part of any academic/educational program offered by schools and higher-education institutions and must be provided with the requisite learning conditions/environments to enable them to achieve their goals.

From a practical point of view, various adjustments and modifications need to be made in the existing programs in order to create the optimal conditions for effective inclusion. According to the Integration Law, a special committee for inclusion should be created in each academic/educational institution, in order to (a) profile the special needs of these students and (b) assist the faculty members who work at the institution in making the required modifications in the program, based on the profiles of the students with disabilities.

3.3 Pedagogical challenges

When making certain adjustments in the TPPs for those students with disabilities, such as students with physical impairments, vision impairments, or intellectual impairments, two main pedagogical challenges need to be considered: (a) What actions should be taken to prepare the lecturers/instructors to work with these students? and (b) What actions should be taken with the students at large who are required to be part of a learning group that is composed of students with different needs?

In our college, The Academic College at Wingate, a number of students with disabilities have been accepted to the TPP, among them students with various physical disabilities. Our aim was to enable these students to be part of a program that is composed of different types of studies—disciplinary studies (e.g., anatomy, motor learning, statistics), pedagogical studies (e.g., teaching methods/strategies, sport pedagogy, assessment of sport skills), physical activity classes (e.g., basketball, soccer, volleyball), and instructional/teaching practices in schools. We needed to consider what modifications we needed to make in each of these categories.

3.4 How did we address the challenge of inclusion?

In order to follow the principles of the leading frameworks of inclusion (e.g., [28, 30]), as well as to effectively deal with the pedagogical challenge of inclusion, a number of actions were taken:

a. In accordance with national legislation [70] and the International Convention on Rights of Persons with Disabilities [6], as well as following a number of applications submitted to the college, the board of the college has committed to accepting and enabling students with disabilities to participate in the PE TPP. These applications were sent by individuals with various disabilities, among them one blind student, one student with a speech disorder, one student with a physical disability (losing one leg in a terror attack), two students who had suffered a mild stroke, and one student with stunted growth. In addition to the students with these specific disabilities who had applied, the objective of the board was to enable individuals with a larger spectrum of disabilities to apply for the PE TPP. The assumption of the members of the board was that after a number of students with disabilities were accepted to the PE TPP, the word would spread that The Academic College at Wingate accepts students with disabilities to its TPP program.

The decision of the board of the college to apply the Inclusion Law, was made after examining all the pros (e.g., providing the opportunity for students with disabilities to study PE) and cons (e.g., the potential difficulties that would have to be faced, particularly those associated with the performance of the students in

the physical skill-oriented classes) in applying the Inclusion Law. It was decided to assign a specific committee to advance the application of this law:

b. The recruitment process: a careful recruitment process was conducted by an assigned committee composed of the following staff members: two experts in adapted physical activity, two experts in sport activities (one in individual sport and one in team sport), and one expert in sport pedagogy. A number of steps were taken by the committee: (1) reviewing the medical report provided by a physician about the mental/physical condition of the applicant; (2) meeting with the applicant to discuss the potential challenges he or she would probably have to face in the PE TPP, as well as to listen to the applicants' own requests about being part of a PE TPP, in order to assist him or her in effectively coping with the TPP's challenges; and (3) reaching a decision concerning the discussed applicant.

c. Bringing the inclusion policy to the forefront: in a number of meetings with other faculty members, the senior faculty members (e.g., heads of schools/departments at the college) explained the policy of the college to "open the gates" for students with disabilities. In the beginning it was not an easy task to discuss the inclusion issue with the faculty members, due to the fact that the college offers TPPs only in PE, a subject that requires not only "listening to a lecture" activities but also active participation in a variety of skill-oriented physical activity classes. Therefore, the discussions focused mainly on the importance of having students with disabilities in the college but also were centered on how to handle potential reactions—not only among lecturers, particularly those who teach physical activity classes, but also among students. As expected, there were a variety of reactions among both the lecturers and the students, for example, "Is it possible to plan a physical activity class composed of 'regular' and disabled students?"; "How can a blind student play basketball?"; and "How can a physically disabled student teach volleyball to a class of 12-year-olds composed only of 'regular' children?"

d. Conducting workshops with lecturers and instructors: in order to cope with the abovementioned questions, a number of clinics were conducted. Two experts in the area of adapted physical activity who work at the college planned a number of meetings where major issues associated with inclusion were discussed. In addition, examples of physical activities (e.g., ball games, basic gymnastics, and folk dancing) for both "regular" students and students with disabilities were demonstrated.

e. Disseminating information about the inclusion policy among the students: at the beginning of the semester, lecturers and instructors provided students with relevant information about the inclusion policy. They emphasized the benefits of this policy but also discussed its potential difficulties. Students were encouraged to share their feelings and perspectives about the policy. No personal information about the students with disabilities was provided.

f. Making modifications in the PE TPP: in order to address the special needs of the students with disabilities, two main modifications were made: (1) modifications in the classrooms/lecture halls and (2) modifications in the activity classes.

Modifications made in the classrooms in which lectures are given: two main modifications were made: (1) physical modifications—most of the classrooms/

lecture halls in the college were modified and equipped according to the special needs of the students, so that they could have easy access to the classroom/hall and sit comfortably during the lectures. Volunteer students (see the next point in this part—Point g) sat next to the student with disability and provided him or her with assistance, if required; (2) instructional modifications—the lecturers of the classes that the students with disabilities attended were aware of the specific impairments of each of the students and met with them a number of times during the semester at special one-on-one sessions. In these meetings, the lecturer focused on specific issues taught in the class upon the request of the student. If needed, the lecturer utilized specific instructional tools, such as a three-dimensional demonstration of human body movements using a wooden mannequin model, to assist the students and increase their understanding. In most of these meetings the student volunteers attended as well, so that they would be informed and could continue working with these students on the relevant learning material.

Modifications made in the activity classes: the instructors who taught the activity classes (e.g., basketball, soccer, track and field) were also aware of the special needs of the students. In cases where the students with disabilities could not practice the drills with the entire class due to their limitations, the instructors prepared a special set of drills for them in advance, allowing these students to practice these drills with the volunteer students separately from the class. The preparation of the extra drills was time-consuming, but this procedure was necessary in order to allow the students with the disabilities to effectively practice the learned motor skills. The modified drills were developed in cooperation with experts in adapted physical activity who were staff members at the college. Sport instructional aids (e.g., balls of different sizes) were used in these classes in order to help the students with the disabilities to successfully practice the motor tasks.

g. Recruiting students: a number of students were recruited to help the students with disabilities. These students were studying adapted physical activity as a minor field in their program and were willing to help the students with the disabilities in various activities—on-campus (e.g., studying with them at the library or at the special learning zones at the college, working with them in the physical activity classes in order to help them acquire the learned drills/skills) and off-campus (e.g., studying for exams together at home, giving them a ride home at the end of the day). These students volunteered to assist the students with disabilities; however the college covered their transportation expenses since we did not want their availability to be limited.

The volunteer students met regularly with a number of the members of the committee that was responsible for the recruitment process. These meetings were held twice during each semester (the academic year is composed of two semesters). In these meetings, the students provided a verbal report of their experiences helping the students with disabilities. They outlined the main actions they performed with these students, in and out of class. They reported about their challenges and difficulties and how they approached them. For example, when the volunteers accompanied the students with disabilities to their teaching assignments in the schools, they did not know how much "freedom" they should provide them—to enable the students with disabilities to teach alone or to occasionally intervene in the teaching process in order to help them bring across their message to the children. They also presented a number of issues that they wanted to discuss with the members of the committee, such as how to enable the students with disabilities to be more independent in their studies.

All the volunteer students reported that helping students with disabilities was a constructive experience. A possible contributor to the positive experience of the

volunteer students might be the knowledge and skills they acquired during their adapted physical activity training as part of the PE TPP. Indeed, they were trained in their PE TPP to work with children with disabilities. However, following the time they spent with the students with disabilities, they also felt ready to work with adults with disabilities. It appears that they appreciated being given the opportunity to work with the students with disabilities.

h. Meetings with the students with disabilities: once in a semester, typically at the end of the semester, a meeting of the students with disabilities and the other key figures was arranged. These meetings were composed of the student with the disability, a number of the members of the committee that was responsible for the recruitment process of the student, and the volunteer students who helped the student with disabilities. The main purpose of these meetings was to listen to the "story" of the students with disabilities, in order to understand how they actually felt in the PE TPP. To achieve this, the students with disabilities shared their feelings, perceptions, and thoughts about their involvement in the program, in and out of class. They reported about the challenges and difficulties they encountered in the classes they took, as well as about their personal and academic achievements, and talked about how they viewed the modifications made in the TPP. They also provided their own personal report on how they felt about teaching in schools and what help they needed in order to improve their teaching skills. As with any other student who studies in the PE TPP, the students with disabilities had some "moments of success" and "moments of failure" in teaching PE in schools. These experiences were elaborated upon in the meetings, in an attempt to increase the number and frequency of the "moments of success."

i. Members of the college staff responsible for the inclusion program met with key figures from the Ministry of Education: a series of meetings were conducted with a number of key figures from the Ministry of Education (e.g., the principle supervisor of PE) in order to (1) provide these individuals with an updated report on the inclusion of the students with disabilities in our TPP; (2) consult with them on how to improve the inclusion process; and (3) discuss future teaching opportunities for the students with disabilities in schools, be it elementary, junior high, or high school.

Some of the lecturers' and instructors' pedagogical concerns associated with the students with the disabilities were discussed in these meetings. For example, the students with disabilities are required, as are all the students in the TPP, to teach instructional units in schools during the second and third years of the program. We were not sure how to help the students with the disabilities to benefit most from their practical work in the schools. Should we let them teach only a small portion of the class? Should we allow them to teach only with the assistance of a fellow student? Or, should they serve only as assistants to the PE teacher who works at the school? Since there is more than one relevant answer to each of these questions, it was important for us to discuss them with key figures from the Ministry of Education.

Future teaching opportunities in the schools for our students with disabilities were also discussed in the meetings with the key figures from the Ministry of Education. The students with disabilities who enrolled in the PE TPP at The Academic College at Wingate have as yet not completed their 4-year program (some of them are classified as part-time students; they preferred to take fewer classes in each year of the 4-year program in order to effectively cope with the TPP's requirements, and

therefore by doing so, they extended their studies to 5 or 6 years instead of the usual 4). However, knowing that these students, namely, our future PE teachers, might need some kind of assistance also while working in the schools (in and out of class), we felt that an early discussion on how to enable an effective inclusion process of teachers with disabilities into the schools should be conducted with those individuals who would be responsible for hiring them (e.g., key figures from the Ministry of Education). Our aim in these discussions was also to develop an understanding of how to enable the inclusion of physical educators with disabilities into the schools. In fact, additional discussions should be held in order to generate ideas on how to ensure that students with disabilities will be hired as PE teachers. For example, school principals who highly value the inclusion process and who are responsible for recruiting teachers to their schools should also be invited to these discussions.

4. Conclusions and future perspectives. Was the curriculum-pedagogical effort worth it?

Given the development and establishment of the inclusive pedagogy in recent decades, it is unfortunate that until now very few studies, and only those of a qualitative case study design, have been conducted to examine the multifaceted aspects associated with the inclusion processes of students with disabilities studying in PE TPPs. Every inclusion process should be carefully evaluated to determine whether its educational objectives are being achieved. Presumably, each process of inclusion has educational merit but also a number of limitations (e.g., allocating a portion of the college's budget to address the challenge) that need to be analyzed and assessed. In our chapter, we demonstrated a unique approach to adapting a PE TPP for the inclusion process. We discussed a number of procedures necessary for the successful implementation of such a TPP. Furthermore, we highlighted some of the challenges encountered while maintaining an inclusion program.

Those who are involved in inclusion processes, policymakers, lecturers, and in this case those students with disabilities who were enrolled in the PE TPP, should be able to answer the following question—*Was the curriculum-pedagogical effort worth it?* In other words, did all the changes/modifications made in the TPP contribute to helping the students with disabilities achieve their goals? In order to assess how we have addressed the inclusion challenge in our college, we plan to adopt a number of research approaches combining both quantitative and qualitative designs (see [71]). Among these approaches are:

a. A survey design (a procedure in which researchers administer a survey to a sample or to an entire population of people in order to assess the attitudes, opinions, behaviors, and/or characteristics of the sample/population)

b. A grounded theory design (a systematic, qualitative procedure used to generate a theory that explains, on a broad conceptual level, a process, an action, or an interaction concerning a substantive issue)

c. An ethnographic design (a qualitative procedure for describing, analyzing, and interpreting culture-sharing groups' shared patterns of behavior, beliefs, and language that develop over time)

d. A narrative research design (describing the lives of individuals, collecting and telling stories about the individuals' lives, and writing narratives of individual experiences)

In another optional design—a mixed-methods research design—researchers collect, analyze, and "mix" both quantitative and qualitative methods in a single study or a series of studies in order to understand the research problem.

The use of the abovementioned designs can assist researchers in collecting data on various aspects of PE TPPs in which students with disabilities study with regular students. Data that can be collected from faculty members, board and committees members, and students at large can assist in evaluating the strengths of the inclusion process (e.g., political, educational, pedagogical), how the program helped students with disabilities develop their disciplinary/pedagogical knowledge, and what aspects of the program need to be improved upon. In addition, these designs can help researchers collect data from those individuals who work with students with disabilities in the field (i.e., school settings), namely, the teachers who supervise them in their teaching practices, the regional PE supervisors, and the principals of the schools. The data obtained from external sources (e.g., teachers who supervise the students in their teaching practices in schools) can complement the data collected from internal sources (e.g., the students) and provide the researcher with a full picture of the changes/modifications made in the TPP, so that the needs of students with disabilities can be met.

The inclusion challenge has attracted a great deal of attention at The Academic College at Wingate during the last few years. In this modern/postmodern era, we feel that to address such a challenge is a kind of cultural-social mission. By gathering and analyzing quantitative and particularly qualitative data, we will be able to increase our understanding of how we have addressed the inclusion challenge and, more importantly, how we will be able to enhance some aspects of the TPP so that students with disabilities will be able to gain the greatest benefit from the preparation program.

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Chapter 3

The Difference of Teachers' Beliefs Related to Students' Practice of Confucian Analects: A Comparison among Three Chinese Fujian Ethnic Regions

Jon-Chao Hong, Ming-Yueh Hwang and Kai-Hsin Tai

Abstract

Confucian culture is an important shared cultural characteristic in Chinese societies. The transmissions under different historical effects lead to differences of perceiving students' practice of the Confucian Analects in society. The behaviors and beliefs of teachers represent their beliefs in observing students' moral practices. The present study examined students' practice of Confucian Analects observed by Chinese teachers in Fujian region of China, Taiwan, and Malaysia. Based on praxis approach, the present study contracted eight major constituents of Analects for explorative analysis. Seven hundred sixty questionnaires are returned and validated for explorative and comparative analyses. The results indicated that the constituents were correlated, and the teachers in the Fujian region thought that their students had the highest practice of the Confucian Analects, than Taiwan and Malaysia. The implication of this study suggested that cultural difference affects the perception of Chinese teachers in students' practice of Confucian Analects and can be deployed in educational settings to increase the life fulfillment of Confucian philosophy.

Keywords: Confucian analects, moral education, cultural effect, praxis approach, explorative analysis

1. Introduction

Confucian culture, considered a common characteristic in Chinese societies, was originated by Confucius in 551 B.C. The Confucian Analects (a record of the dialogs between Confucius and his disciples) are the foundation of Confucianism. The "orthodoxy" mentioned above refers to students' practice of Confucianism, which is also one of the main subjects embedded in Chinese education settings. In students with different Chinese heritages, as reflected from the different political, social, and economic factors in this particular area, their practice of the Confucian Analects would be different. Based on praxis approach, which refers to teachers introspect others of the act of engaging, applying, exercising, realizing, or practicing ideas, the present research attempts to explore the differences in students' practice of the

Confucian Analects as perceived by teachers in three Asian regions (the Fujian Region of China, Taiwan, and Malaysia).

2. Literature review

Chinese Confucianism and Western Aristotelian ethic have many things in common. They both emphasize the virtues of human beings [1], and they both believe that models of individuals are of great importance for teaching appropriate behavior [2]. To Confucius, a person with good morals was regarded as a gentleman (junzi), and to Aristotle, such a person was a phronimos. Both junzi and phronimos mean the distinguishing characteristics of honesty and proper behavior, which are both based on the need for human beings to cultivate and practice virtuous behavior. The concepts of a virtuous citizen can be traced back to the famous works of Plato and Aristotle, *Republic* and *Politics*, respectively, both of which stress the importance of citizenship [3]. Chan also mentions that Asians understand the significance of moral behavior because "ren" is the basis of social order, "li" is the basis of ethical behavior, and "jia" is the basis of family. Confucian culture is an important part of their cultural inheritance [4–7] in particular to those citizens who speak Chinese. Therefore, the present study is a preliminary empirical exploration of this concept to understand the factors affecting students' practice of the Confucian Analects.

2.1 The Confucian Analects

The Confucian Analects state that human beings should be concerned with more than 20 virtues, such as benevolence, righteousness, courtesy, wisdom, loyalty, forbearance, faithfulness, humbleness, respect, filial piety, and so on. In order to conduct this current explorative research, the present study classified some core virtues into "benevolence," "courtesy," and "righteousness" to be elaborated as follows.

2.1.1 Denotation of benevolence

2.1.1.1 Self-discipline

Benevolence (ren) is the lifelong quest to be the most genuine, sincere, and humane person possible. "Benevolence" is the real sense of communication between individuals, which is essentially the relationship between "me and you." The process of becoming ren, a benevolent gentleman or superior person, is essential for self-perfection as described by Confucius. Confucius believed that human perfection can be attained by anyone. Those who devote themselves to the process of ren are called junzi. People are encouraged to become superior people by self-discipline or self-control to make oneself more benevolent to others [8].

2.1.1.2 Generosity

One virtue specifically mentioned by Fowers [9] is generosity. Horrigan [10] defined generosity as the give-and-take of philanthropy that binds together givers and recipients. In brief, generosity can help us to become balanced and healthy, both mentally and physically. For example, Confucius said, "What are you going to repay kindness with? Meet resentment with straightness and respond to kindness with kindness" (Analects, 14:34). Indeed, benevolence comes about students' practice of generosity originates from the self and not from others.

2.1.1.3 Reflection

Reflective thinking takes into consideration all of the relevant factors in a certain situation and produces non-sentimentally grounded reasons for action. Considering that reflection constitutes a crucial part of moral judgment, it is evident that emotions provide only a partial basis for considerate, dispassionate judgment in Confucian thought; therefore, radical emotional actions should be rejected accordingly [11]. In the Confucian Analects, the originally rational human nature comes to reflect on the stimulation of external objects by generating two types of emotional responses, viz., liking and disliking (or desire and aversion) with the judgment of others' psychological response (Analects, 16:29).

2.1.2 Denotation of courtesy

2.1.2.1 Respect

Respect remains an essential element in maintaining the status of the elderly [12, 13]. Confucius said, "Do not do to others what you do not want them to do to you" (Analects 15:13). In another example, he said, "In serving his parents, a son may demonstrate with gentle; when son sees that parents are not inclined to follow son's suggestions, son should show an increased degree of compromise at the spot, but does not abandon his purpose to suggest them after a while with good condition; and he does not complain" (Analects, 4:18). Moreover, from [14] the analysis of the Analects, the forms of respect were distinguished, such as (1) care respect, providing care and services for elders or others; (2) victual respect, serving foods and drinks for others or elders' first choice; and (3) linguistic respect, using respectful language in speaking to others and so on.

2.1.2.2 Conservatism

Chinese ethics was characterized by a certain style of conservatism which held that change through individual action could only have limited influence on the environment, since the environment was ruled by external and contingent forces [15]. Confucian philosophy leads the Chinese to avoid extremism in expressing their opinions and curiosity to maintain harmony [16]. Confucius believed courtesy was a norm of good behavior. Any discourteous behavior would not be virtuous and would cause undesirable results [17]. In *The Analects*, ritual and courtesy (li) are conservative behaviors [1].

2.1.2.3 Prudence

In short, one could call wisdom a mature prudence. In Confucianism, prudence de-emphasizes self-interest holding that self-interest is the concern of the "mean man" for profit [18]. Confucius' disciple Zilu was called "bold," but Confucius reminded him that a truly virtuous person puts prudence first, because it can bring righteous virtue into its proper place (Analects, 17:23). Confucius asserted that in the bold person without prudence, knowledge would become "unruly."

2.1.3 Denotation of righteousness

2.1.3.1 Propriety

The Confucian approach requires one to hold a proper attitude toward striving for human virtues and profits [1]. A junzi is always considered as cunning, which

means to gain dubious ends and always has no anxieties and fears. On the contrary, a narrow-minded person loves property, always worries about material possessions, and is motivated by profit. For example, Confucius said, "Carefulness, without the rules of propriety, becomes timidity; boldness, without the rules of propriety, becomes insubordination; straightforwardness, without the rules of propriety, becomes rudeness" (Analects, 8:2). Thus, Chinese culture belittles those who without the rules of propriety will just say this and that but do nothing with righteousness.

2.1.3.2 Responsiveness

Chinese people are evaluated by many moral standards, for instance, loyal or disloyal ministers, upright or corrupt officials, filial or non-filial sons, and so on. Therefore, consideration and responsiveness become important and expected interpersonal behaviors [19]. For example, "Promises must be kept, actions must produce results" (Analects, 13:20). Confucian junzi holds that moral awareness and responsiveness are necessary for harmony in human relations. The ideal personality obliterates the subjectivity of individuals. The value of an individual is in one's externality or integral nature. A superior person does not put blame on others but instead takes responsibility for misdeeds and is always considerate and entirely unselfish.

2.2 Confucian culture of the Chinese people in the three Asian regions

Chinese heritages under different historical transition have developed different practice of the Confucian Analects. In the 1970s, Mainland China experienced Confucianism lamentably suppressed. Recently, there has been a trend toward a revival and reopening of Confucian culture, such as open many Confucian schools around the world.

Taiwan, with more than 70% Fujianese heritages, has kept long thought of itself as a place for inheritance and transmission of traditional Chinese culture and orthodoxy due to several reasons: Confucianism has been included in teaching materials for school children, and Confucian culture is integrated into the teaching of the Chinese language. Taiwan society is having more experience with diversification and differences. For the past three decades, Confucianism has been encouraged and advocated by the governmental policy that in and of itself exemplifies the traditional use of Confucianism in politics.

Malaysia is a culturally diverse society, with ethnic Chinese heritages, mostly Fujianese, accounting for 24% of the people. Malaysian and English are the official languages of the country. Malaysian Fujianese pay close attention to their children's education, which follows the best traditions of Chinese culture. Similar to the Taiwanese who study traditional Confucianism, new Malaysian Chinese are also aware of the conflicts of basic values between Confucianism and Western culture. Those oversea Chinese have been living in Malaysia for several generations, if there has been no fundamental change in the original values and inclinations of Confucianism would be interested to be examined.

3. Research hypotheses

The psychological process in between is affected by the internal cultural form and standard [20]. The "cultural meaning system" has therefore become an important model to explain cultural and social perceptions [21]. When personal

experience is provided, it is meaningful for the system. The process of social perception also changes because of culture. As such, with the diverse cultures, people have different perceptions and practices of traditional Confucian orthodoxy. The following hypotheses are proposed to guide this study:

Hypothesis 1: There are significant correlations among the constructs of the Analects.

Hypothesis 2: There are significant differences in the perceptions of students' practicing the Analects among the three Asian regions.

4. Research design

The present study focused mainly on developing an instrument to measure the perception and practice of the Confucian Analects and employing the instrument to examine the perception of school teachers in their students' practice of the Confucian Analects in different regions.

4.1 Research procedure

For observational studies conducted in educational and psychological research, Vogt [22] identified that the two of the most common sampling strategies are convenience sampling and purposive sampling. He confirmed that this trend of having purposive sampling being the most common form of sampling is still true in contemporary social science research. Accordingly, the present study adopted the purposive sampling method based on those teachers who attended in-service professional development programs during the summer vacation of 2012. Questionnaires were delivered by those workshop organizers or administrators including the Educational Bureau of Fujian province, the Taiwan Teacher Professional Development Center, and the Malaysia Taiwan Alumni. The latter organization managed workshops particular for Chinese school teachers in summer vacations around south parts of Malaysia where most Fujianese live by. In regard to ethical issues, teachers were informed that they were not obliged to participate in this research project. The importance of maintaining confidentiality of personal information was also being stressed to participants in the introductory statements.

4.2 Research participants

The present study mainly explores the perceptions of students' practice of the Confucian Analects by Chinese teachers in three Asian regions. The study chose three regions where the subjects' ancestors all majorly came from the Fujian region, and their mother language was Minnanese (also known as Fujianese or Taiwanese). The research subjects were primary school teachers in the Fujian region of China, primary school teachers in Southern Malaysia (80% of whom can speak Minnanese), and primary school teachers in Southern Taiwan (80% of whom can speak Minnanese). For the study, there were 1200 questionnaires distributed, with 500 questionnaires to the Fujian region of China, 500 questionnaires to Taiwan, and 200 questionnaires to Malaysia. There were 760 questionnaires returned, with a return rate of 63.3%, which included 418 questionnaires from the Fujian region of China, 204 questionnaires from Taiwan, and 138 questionnaires from Malaysia. The majority of respondents were female 486 (63.9%). In age distribution, teachers aged 40 and younger accounted for 613 responses, with 122 samples from teachers aged 41–50 years and 25 samples from teachers aged 51 years and older.

4.3 Research instrument

According to the above exploration of the meaning of Confucian culture, the present study devised 80 questions in eight categories. First, the study invited 290 teachers in Taiwan to take a pilot test. Item analysis was adopted to identify inappropriate questions, leaving 59 questions to be included in the survey questionnaire. According to their personal perceptions, the surveyed teachers ranked the adjoining students (i.e., who were students ever being taught by the research participated teacher) on each question using a 5-point scale where 1 represented nearly no one, 2 represented few students, 3 represented some students, 4 represented most students, and 5 represented nearly all students.

5. Data analysis

The present study used SPSS 19 to analyze the descriptive data and perform confirmatory factor analysis including reliability analysis, validity analysis, and factor analysis. The Pearson coefficient of correlation was used to explore the correlation matrix between variables.

5.1 Descriptive analysis

The analysis of the descriptive statistics showed that when the average scores for the perception of students' practice of the Confucian Analects under different background variables such as gender, age, and distance from downtown are used as the criteria, questions with higher-than-average scores are predominant in four constructs: responsiveness, propriety, generosity, and respect. The teachers in both Taiwan and Malaysia had a lower recognition (M < 3.0) for the conservatism of the adjoining students. Conversely, the teachers in the Fujian region of China had a higher recognition (M > 3.0) for the conservatism of the adjoining students.

With regard to the construct of prudence, for the various background variables, the teachers' perceptions of the adjoining students' behavior were lower than their average perception for students' practice of the other constructs in the Confucian Analects. However, for the construct of respect, the perceptions of the teachers over 51 years of age of the adjoining students' behavior were lower than the average scores for all ages of the perceptions of students' practice of the Confucian Analects (M = 3.09). This was due in part to their more negative responses to the question, "Sons and daughters should show respect to their parents, do not defy their ideas; and the junior generation should actively take care of the elderly."

Teachers in Taiwan scored the adjoining students higher than average for responsiveness, propriety, generosity, and respect, but the lowest score was for conservatism. The perceptions of the teachers in Malaysia of the adjoining students' behavior were higher than the average scores in the three constructs of responsiveness, propriety, and respect, but not in the construct of generosity. The perceptions of the teachers in Malaysia of the adjoining students' conservatism were lowest, which was similar to the perceptions of the teachers in Taiwan. The perceptions of the teachers in the Fujian region of China of the adjoining students' behavior were higher than the total average scores for the perceptions of students' practice of the Confucian Analects, which was similar to the teachers in Malaysia.

However, the Chinese teachers' perceptions of the adjoining students' behavior achieved the lowest scores in the construct of self-discipline, revealing that when the racial, national, and social atmosphere is different, the perceptions of students' practice of the Confucian Analects are also different. For example, the

teachers in Taiwan and Malaysia thought that the adjoining students still curiously watch, inquire about, and talk much about things unrelated to them. The teachers in the Fujian region of China thought that the behavior of the adjoining students revealed a more self-centered approach to life, which led them to blame others for their mistakes.

5.2 Reliability and validity analyses

This study adapted exploratory factor analysis to examine the correlation among factors. Before factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .852; the results of the first factor analysis showed 15 factors with characteristic values greater than 1. As to the rotated component matrix, as shown by the scree plot, the characteristic value of the first five factors was greater than 2, and the cumulative explanatory power of the first eight components exceeded 50%. Therefore, 12 questions after the eighth constructs were deleted. After that, factor analysis was performed again. In terms of construct validity, the KMO value was .862, and there were 11 factors with characteristic values greater than 1, all factor loadings were statistically significant. The first eight components were taken, and the subsequent 14 questions were deleted due to their insignificant explanatory power. Finally, after the second factor analyses, the 33 questions were classified according to eight constructs: (1) prudence, (2) responsiveness, (3) conservatism, (4) propriety, (5) generosity, (6) self-discipline, (7) respect, and (8) reflection. The factors and questions are listed in **Table 1**.

Qt. No.	Questions (− indicates questions scored in reverse order)	M	SD	Factor loading
Factor 1: Prudence α = 0.82				
1	Young people are too libidinous (−)	3.04	0.84	0.715
2	People in the prime of life like to fight with others (−)	3.15	0.81	0.777
3	The aged are keen on getting petty advantages (−)	3.14	0.81	0.802
4	People speak out of turn (−)	3.25	0.72	0.731
5	People do not care about the facial expression and response of the other person and continue to talk on and on (−)	3.32	0.69	0.728
Factor 2: Responsiveness α = 0.82				
1	People keep promises and match their words with actions	3.45	0.72	0.752
2	People do not brag about their good deeds	3.33	0.78	0.630
3	People are very happy to extend hospitality to friends traveling from remote places	3.93	0.71	0.716
4	People act according to the principles of right or wrong rather than the advantages or disadvantages to themselves	3.06	0.82	0.613
Factor 3: Conservatism α = 0.82				
1	People do not curiously watch things that do not concern them	2.95	0.86	0.864
2	People do not inquire about things that do not concern them	2.97	0.87	0.931
3	People do not talk about things that do not concern them	3.15	0.88	0.869
Factor 4: Propriety α = 0.81				
1	People offer help when other people are doing good things, but offer no help when they are doing bad things	3.95	0.82	0.762
2	People do not insert themselves into other people's business	3.76	0.80	0.614

Qt. No.	Questions (− indicates questions scored in reverse order)	M	SD	Factor loading
3	People do not do anything offensive to God and reason even if no one is watching them	3.85	0.88	0.772
4	People show sorrow and sympathy to unfortunate things and do not rejoice in the misfortune of others	3.83	0.83	0.728
Factor 5: Generosity α = 0.86				
1	Although people dislike their superior's attitude toward them, they do not take the same attitude with their subordinates	3.46	0.78	0.833
2	Although people dislike their subordinates' attitude toward them, they do not take the same with their superiors	3.53	0.78	0.841
3	High-status people do not bully and oppress low-status people. Low-status people also do not rely on high-status people to achieve higher status	3.13	0.87	0.745
4	Do not inquire into the things in the past because they have already become facts	3.19	0.83	0.743
Factor 6: Self-discipline α = 0.82				
1	People learn from the strengths of others. When seeing others' weaknesses, they remind themselves to make improvements	3.31	0.80	0.701
2	When fishing, people do not catch too many fish and are concerned for the environment	3.01	0.88	0.801
3	When hunting, people do not shoot sleeping birds; they do engage in sneak attacks; and they take no advantage from people unprepared	2.98	0.91	0.819
4	People forsake a luxurious and prideful life in favor of a frugal and conservative life	3.11	0.83	0.793
5	When people make mistakes, they do not shift the blame onto others; they learn their lessons and do not make the same mistakes again	3.10	0.82	0.810
6	People only care about eating and drinking sufficiently every day; they are mindless in doing right things and have no life goal (−)	3.44	0.82	0.744
Factor 7: Respect α = 0.86				
1	Seeing their parents have faulted, sons and daughters give them advice tactfully. If the parents do not want to listen to the advice, their sons and daughters still show respect to them, do not defy their ideas, and talk to them later at an appropriate time	3.12	0.83	0.539
2	The junior generation actively takes care of the elder members of the family and helps them with their work or activities	3.62	0.77	0.866
3	Should there be delicious food, junior generation lets the elderly eat it first	3.48	0.81	0.821
Factor 8: Reflection α = 0.81				
1	People do things impulsively and rashly, with no consideration for the outcome (−)	3.22	0.79	0.795
2	People think negatively and see others' intention pessimistically (−)	3.24	0.76	0.828
3	People do not care about what other people dislike; but what other people like affects their preferences (−)	3.14	0.81	0.793
4	People speak carefully and work hard and fast (+)	3.05	0.71	0.828

Table 1.
Factors loading analysis.

Cronbach's α reliability analysis was used to investigate the reliability of the questionnaire. In this study, the Cronbach's α was 0.83 indicating that the questionnaire was reliable. The Cronbach's α reliabilities of the individual constructs were as follows: responsiveness, 0.82; conservatism, 0.82; propriety, 0.82;

generosity, 0.81; prudence, 0.86; self-discipline, 0.82; respect, 0.86; and reflection, 0.81, as shown in **Table 1**.

6. Research results

The results were analyzed in two steps. The first step, the degree of linear relationship between each construct was calculated and used Pearson's r coefficient of correlation. The second step, we adopted one-way ANOVA to compare the difference between teachers' perception of students' fulfillment in three areas.

6.1 Correlation analysis among different constructs

Regarding the correlation between each construct and the perceptions of students' practice of the Confucian Analects, each of the eight constructs had a high correlation with the perceptions of students' practice of the Confucian Analects. These eight constructs were also correlated to each other, implying that each construct was significantly affected by the others. As for the correlation between the perceptions of students' practice of the Confucian Analects and each construct, the positive correlation to prudence appeared in those constructs, responsiveness ($r = 0.135, p < 0.01$), propriety ($r = 0.116, p < 0.01$), self-discipline ($r = 0.141, p < 0.01$), and reflection ($r = 0.551, p < 0.001$) but negatively correlated to generosity ($r = -0.247, p < 0.01$). The positive correlation to responsiveness appeared in those constructs, conservatism ($r = 0.433, p < 0.001$), propriety ($r = 0.520, p < 0.001$), generosity ($r = 0.561, p < 0.001$), self-discipline ($r = 0.141, p < 0.01$), respect ($r = 0.574, p < 0.001$), and reflection ($r = 0.091, p < 0.05$). The positive correlation to conservatism appeared in those constructs, propriety ($r = 0.437, p < 0.001$), self-discipline ($r = 0.561, p < 0.001$), and respect ($r = 0.561, p < 0.001$), but negatively correlated to generosity ($r = -0.479, p < 0.001$). The positive correlation to propriety appeared in those constructs, generosity ($r = 0.535, p < 0.001$), self-discipline ($r = 0.438, p < 0.001$), self-discipline ($r = 0.453, p < 0.001$), and reflection ($r = 0.121, p < 0.01$). The positive correlation to generosity appeared in those constructs, self-discipline ($r = 0.584, p < 0.001$) and respect ($r = 0.419, p < 0.001$), but negatively correlated to reflection ($r = -0.172, p < 0.01$). The positive correlation to self-discipline appeared in those constructs, respect ($r = 0.457, p < 0.001$) and reflection ($r = 0.126, p < 0.01$) (**Table 2**).

Some interesting findings from the correlation analysis, for instance, generosity, were negatively correlated to prudence, conservatism, and reflection but positively correlated to responsiveness, propriety, self-discipline, and respect.

6.2 Comparisons of students' practice of *Confucian Analects* perceived by teachers in different region

Differences between three or more treatments were tested using one-way ANOVA followed by post hoc analysis using Scheffe test, which corrects p values for multiple comparisons [23]. To measure the magnitude of differences between constructs, effect size was calculated using Cohen's *d* [24]. Based on Cohen [25], the effect sizes for Scheffe method were expressed by Cohen's d with classification into small (Cohen's *d* = 0.2), medium (Cohen's *d* = 0.5), and large (Cohen's *d* = 0.8).

Statistical analysis showed that teachers in different regions thought differently about their adjoining students' practice of the Confucian Analects (**Table 3**). The relationships between fixed variables (different regions) and other eight

	Prudence	Responsiveness	Conservatism	Propriety	Generosity	Self-discipline	Respect	Reflection	Overall
Prudence	1								
Responsiveness	0.135**	1							
Conservatism	−0.081	0.433***	1						
Propriety	0.116*	0.520***	0.437***	1					
Generosity	−0.247**	0.561***	−0.479***	0.535***	1				
Self-discipline	0.141**	0.510***	0.453***	0.438***	0.584***	1			
Respect	−0.071	0.574***	0.345***	0.453***	0.419***	0.457***	1		
Reflection	0.551***	0.091*	−0.072	0.121**	−0.172**	0.126**	0.058	1	

* p < 0.05, ** p < 0.01, *** p < 0.001.

Table 2.
Correlation matrix of different constructs.

Fixed variable	Dependent variable	df	F	Significance	*d*
Three areas	Prudence	2	5.006	0.007**	0.28
	Responsiveness	2	5.084	0.007**	0.42
	Conservatism	2	10.609	0.000***	0.36
	Propriety	2	26.574	0.000***	0.29
	Generosity	2	6.896	0.001**	0.45
	Self-discipline	2	4.123	0.010*	0.36
	Respect	2	13.624	0.000***	0.33
	Reflection	2	16.003	0.000***	0.41

*p < 0.05, **p < 0.01, *** p < 0.001.

Table 3.
One-way ANOVA.

dimensions were tested using one-way ANOVA. From **Table 3**, all dimensions were shown to be statically significant ($p < 0.01$); the responses to different regions of Chinese teachers at all levels were influential. From the above results, multiple comparisons can be carried out (**Table 4**).

For multiple comparisons, the data of mean difference is first classified into Areas 1 and 2 in different directions; the results are shown in **Table 4**. Further comparison of the teachers in the three regions showed that the teachers in the Fujian region of China (Md = −0.153 and − 0.494 are all negative: Taiwan < China and Malaysia < China) had the highest perceptions of their students' practice of the Confucian Analects, the teachers in Taiwan came next, and the teachers in Malaysia (Md = −0.1049 and −0.0494 are all negative: Taiwan < Malaysia and Fujian, China < Malaysia) had the lowest perceptions of the adjoining students' practice of the Confucian Analects (**Table 4**).

According to the above comparative results, the teachers in the Fujian region of China thought that the adjoining students had the highest practice of the Confucian Analects and believed that the Confucian Analects were practiced frequently. However, this may be because the students in the Fujian region believe that the Confucian Analects originated from the Chinese complex, leading to the appearance of pan-moralist performance. Therefore, the possibility of overestimation of the students' practice of the Confucian Analects must be investigated further. Berry and Sam [26] once commented that according to his life experience in different foreign countries, among the Chinese people in Taiwan, Singapore, and the Fujian region of China, those from the Fujian region of China think most highly of interests and have the most adventurous spirit.

Area 1	Area 2	Mean (1–2)	Significance	Difference	Remarks
Taiwan	Malaysia	0.1049 (*)	0.010*	Taiwan > Malaysia	China > Taiwan > Malaysia
	China	−0.0494 (*)	0.031*	Taiwan < China	
Malaysia	Taiwan	−0.1049 (*)	0.010*	Malaysia < Taiwan	
	China	−0.1543 (*)	0.000***	Malaysia < China	
China	Taiwan	0.494 (*)	0.031*	China > Taiwan	
	Malaysia	0.153 (*)	0.000***	China > Malaysia	

*p < 0.05, **p < 0.01, ***p < 0.001.

Table 4.
Post hoc comparisons.

Relative to the teachers in Fujian China, the teachers in Malaysia had lower perceptions of the surrounding students' practice of the Confucian Analects. The reason behind this may have been due to the influence of English education on the students of Malaysia. The teachers in Malaysia may have had higher expectations for students' practice of the lofty Confucian Analects. Therefore, the perceptions of the teachers in Malaysia of the adjoining students' practice of the Confucian Analects may have been underestimated.

7. Discussion

The results of the present study show that among the three Asian Fujianese-speaking regions that are deeply influenced by Confucian culture, Chinese teachers had different perceptions and concepts on students' practice of the Confucian Analects. In the development process of different regions using the same dialect (Minnanese or Fujianese), it appears that culture had created differences in perception. According to the correlation analysis, the result showed that all eight constructs were positively associated, which indicated that if one perceived their adjoining students could have a good practice in one construct of the Confucian Analects, and then other constructs could also be performed well.

An individual who exhibits ren is a junzi, which can be translated and idealized as "gentleman." For instance, Li and Wegerif [27] highlight "Look not at what is contrary to propriety; listen not to what is contrary to propriety; speak not what is contrary to propriety; make no movement which is contrary to propriety." That supports behavior as junzi (Confucius, o.p 1893, 12: 1). As in cultivating students to be junzi, Confucian Analects attempt to discipline them as dependent on authority figures and obedient and conforming to rules and deadlines [28]; in corresponding to this assertion, Morony et al. [29] pointed out that Confucian Asian countries were lower on self-concept than European countries. In contrast to the confidence of students, Confucian Asian countries were higher than European countries, while they investigate the cross-cultural variance of mathematical self-beliefs in relation to mathematics achievement in two world regions: Confucian Asia (Singapore, South Korea, Hong Kong, and Taiwan) and Europe (Denmark, The Netherlands, Finland, Serbia, and Latvia). However, in comparing the Confucian Analects practice in different regions, the results showed that some constructs, conservatism and propriety, were superior from Fujian region to Taiwan and Malaysian regions. The results also indicated that in prudence, students from Taiwan were superior to Fujian; in self-discipline, students from Taiwan were superior to Fujian and Malaysia. On the other hand, the results revealed that in generosity and respect, students from Malaysia were superior to Taiwan and Fujian. However, the results demonstrated that in reflection, students from Fujian were superior to both Taiwan and Malaysia.

It is obvious that respect is defined by the Confucians as positive duty; a minister should take into account all the objective conditions to determine whether respect is a typical "imperfect duty" [30] (i.e., you do not entice a blame should you respect to others that you could simply not reason condition just thought it was imposed). Regarding Confucian as an unforgiving mindset, students do things with caution [31]. Where generosity is a part of Confucian forgiveness, students from Malaysia appear to be more generous than the other two areas. The influence of regional culture manifests itself in many facets of standardization and preferences [32]. This may be because the students in the Fujian region believe that educational

philosophy has emphasized these two virtues of the Confucian Analects, leading to the appearance of pan-moralist performance while answering the questionnaire.

Moreover, regarding the Confucian Analects' study, Tak and King [33] conducted interviews with individual contemporary Confucian merchants in China, Taiwan, Hong Kong, Singapore, and Kuala Lumpur, Malaysia, on their business practices. Their study centered on the perceived conflicts experienced by those Confucian merchants with respect to business practices that adhere to Confucian ethics and those that adhere to the notion of the maximization of profit. This may not explain some of the results found in the present study, which indicated that, in average, Chinese Malaysians had the lowest perceptions of students' practice of the Confucian Analects.

8. Conclusion

The people of the three Asian regions (the Fujian region of China, Taiwan, and Malaysia) share Fujianese as the main dialect but are immersed in different social and cultural circumstances. In brief, the Chinese teachers in the Fujian region of China had the highest average perception of their adjoining students' practice of the Confucian Analects, teachers in Taiwan had a lower average perception of their adjoining students' practice of the Confucian Analects, and teachers in Malaysia had the lowest average perception of their adjoining students' practice of the Confucian Analects. Based on the high practice of the ethic, teachers are committed to school goals and values [34, 35] and are more willing to go above and beyond the call of duty to contribute to successful change that the success of schools depends fundamentally on. Therefore, the result of the present study can be applied to leadership practice in the society influenced by Confucianism; students observe obligations associated with different roles. According to Zhang et al. [36], the Confucian Analects should become the basis for school management to shape good school culture.

Again due to this study which adapted the praxis approach, those participants might have the "leniency or severity error" which is defined as the rater having the tendency to assign a higher or lower rating to an individual than is warranted by the rater's behavior [37]. In this case, students from different cultures may have different tendencies of leniency errors; thus, the results of this current research only can be explained based on the exclusion of cultural influence. The present study developed a scale for testing the perceptions of students' practice of the Confucian Analects by using Chinese teachers in the Asian regions, where Fujianese is considered the main dialect of the research subjects. Thus, this study is limited to the Fujianese-speaking area. However, Confucian Analects are not only popular in Fujianese-speaking area but also widespread in many Asian countries (e.g., Korea, Japan, etc.), so further studies may encompass other areas to realize the cultural effect on students' practice of Confucian Analects.

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Conflict of interest

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Section 2

Teacher Development

Lack of Qualified Teachers: A Global Challenge for Future Knowledge Development

Mona Holmqvist

Abstract

A major challenge for teacher education in the twenty-first century is to provide society with qualified teachers to teach and prepare the next generation of citizens. The situation in, for example, Sweden and South Africa faces huge issues concerning an increased lack of teachers in the future, as well as difficulties with teacher attrition. Examples from the USA show that up to 50% of new teachers quit working as teachers within 5 years. The difficulties with knowledge transfer to new generations, are a global threat. In this chapter, the deficiency of examined teachers is addressed in Section 1. This is followed by an overview of two key aspects of teachers' professional development, namely bridging the gap between practice and theory to enhance teaching quality as well as the importance of practice-based professional development to maintain teachers to work as teacher in a long-term perspective. The results of a case study of students' views on theories are presented, showing a strong experienced dichotomy between theory and practice, and difficulties to see how theories could be used to better understand classroom situations. Finally, a proposal of how to bridge the gap between theory and practice with designed modules is presented.

Keywords: teacher education, teacher attrition, practice-based professional development, teacher program modules, teacher preservice training

1. Introduction

UNESCO Institute of Statistic states that: "In the next 14 years, countries must recruit 68.8 million teachers to provide every child with primary and secondary education: 24.4 million primary school teachers and 44.4 million secondary school teachers" [1]. Sweden and South Africa share a common societal challenge with many of other countries in the world, the risk of lack of qualified teachers to support societal knowledge development. In Sweden, in total, more than 45,000 teachers will end their employment within the next decade. Approximately 33% of the teachers who teach grades 10–12 will retire during the same time. More than half of all special educational needs (SEN) teachers in Sweden will retire within 10 years, and there will be an expected shortage of 60,000 teachers by 2019. In South Africa, there is a need of 20,000–30,000 new qualified teachers each year, and in 2011, only a third were produced. With efforts of the two national departments of education between 2009 and 2012, initial teacher education increased from 35,937

to 94,237, an increase of 160%. But there is still a significant shortage of foundation phase teachers and also a significant teacher shortage in key subjects [2].

Both Sweden and South Africa have declared the right to quality education for all without limitation, which is hard to achieve if they cannot provide schools with qualified teachers. Findings from the OECD Teaching and Learning International Survey (TALIS 2013) examine teachers' and school leaders' expressed experiences of learning environments in their schools [3]. The results show that "more than a third of teachers work in schools with significant staffing shortages of qualified teachers" (p. 19). When teachers do not have the necessary formal qualification for their tasks, feedback from school leaders and colleagues is of importance to ensure the quality of teaching. Despite the knowledge of the importance of feedback, the result from TALIS 2013 points out that 46–51% of the teachers report never having received feedback on their teaching from their school leader or other members of the school management. Finland and Sweden are two of the countries with the lowest report of feedback as more than 70% of the teachers in both countries report never having received any feedback. The teachers in the Nordic countries also differ significantly from other participating countries, as they report almost no opportunities to participate in mentoring activities. As the results point out that self-efficacy correlates with taking part in professional development on a regular basis (e.g., once a week) [3], it seems as the Nordic countries show shortcomings in professional development based on feedback, which is found to be an important aspect to decrease teacher attrition. Swedish teachers also reported having the lowest amount of job satisfaction. The importance of enhancing the amount of new teachers, as well as encouraging the active teachers to maintain working as teachers, has been recognized in several countries. Mashau et al. [4] report from a South African perspective the efforts to enhance professional development: "The DoE (2011) further states that at the same time, the department works to support the professional development of all teachers. As opportunities to observe and be observed are central to effective professional development, the government makes it clear that there is no '3-hour limit' on the amount of time a teacher can be observed."

Teachers, who have the opportunity to get constructive feedback in a "feed-forward" way, develop their professional skills as well as increase self-efficacy. However, what kind of support they get is crucial for if and what become possible to develop. In Sweden, preservice training of teachers has become an academic education at university level. This strengthens the teachers' scientific ground, but what theoretical approaches are offered teachers? One problem is the waste amount of descriptive and interpretative research presented in the general educational sciences courses [5], which are mandatory for all teacher students in Sweden. Instead of providing teachers with research results made possible to use to predict and understand how to facilitate the students' learning, they study research on teachers' and students' acting or discussions in the classroom. This is of course also important for teachers to study, but necessarily not at the expense of research on how to teach and learn in the classroom. The large proportion of ground research presented in the teacher programs, in relation to the lack of research results of applied research to improve teaching and learning, results in leaving the teachers' development to themselves. They have to base their teaching on own experience and gradually understand how to design lessons and analyze the students' learning outcomes by trial and error. The circumstance with a lack of applied educational research results, in combination with the extensive research results based on descriptive and interpretative research results, might be one of the reasons for a gap between theory and practice. It might also be the reason for the diverse consults entering the school scene to guide teachers, often without real evidence for the methods introduced

supposed to solve the schools' problems. As the teachers do not share the researchers' viewpoint of the importance of the theories provided during the program, they turn to other "experts" outside school and academia to find support.

2. The gap between theory and practice

The challenge of scientific-based teaching has to be elaborated further, to deepen the understanding of the difficulties. As mentioned above, the results from a national Swedish review of teacher education show that a completely dominant genre of research, which is a part of teacher education, is interpretative research, especially research from a sociocultural perspective [5]. The research that prospective teachers face therefore mainly focus on describing and interpreting the specific and does not aim to point to general patterns or results of classroom learning. The theoretical discussions become abstract, and the preservice students have difficulties transforming the approaches to their professional work as teachers. They feel the results are of little or no meaning for their classroom activities. Although the education is aiming to enhance teachers' competences to teach in a classroom, the research provided during their education is basic research, instead of applied research results saying something about the classroom teaching. The results do not provide the students with knowledge of how to predict or act in the classroom. The main research studied are instead observations of teachers' or students' behavior in the classroom, often not guiding or taking a stance for teachers or teaching recommendations. In fact, the opposite is desirable to avoid being understood as normative.

The gap between theory and practice might be explained as a gap between the perspectives of research provided in relation to the goals of the vocational education for teachers. In a study on the "theory-practice divide" in teacher education, the results show that what the research teacher educators' find relevant to introduce for teacher students is rather determined by their own research interests than the students' needs [6]. What is relevant to educational theories, included in the program, is determined by the teacher educators. More than so, if the teacher educator is perceived to have an authority regarding "real classrooms," the associated theories are accepted. On the other hand, if the teacher educator does not have a legitimate power base, the associated theories are dismissed. So, it is not only how the theory is valued, the real experiences of classroom work affect the students' reliability on what the teacher educator presents.

The importance of real classroom experience can be integrated in the teacher program to enhance the preservice teachers' confidence in the teacher educator and the course moments in the program. It can also be used to make teacher educators without classroom experience, or old experiences, able to understand what theoretical approaches might be important introducing for the students. Further on, it can be used to apply the theoretical assumptions on, showing the students in what way theoretical perspectives can be as glasses put on to see situations from new perspectives and analyze classroom activities based on theoretical assumptions.

3. Preservice teachers' views on theory input

When teachers or other professionals are asked where they have learnt most skills needed in their profession, 70% report they have learned such skills outside the formal education [7]. The teachers' professional training at schools during their education

is highly valued by the students [8] and by that an important part where preservice teachers develop professional skills in a formative way. The supervising in-service teachers have a great impact on how the students develop their skills, as they are mentors during the entire education. In mentoring discussions, emotional support and task assistance seem to be considered as most important feedback by the students [9].

Theoretical reflections on classroom practice during preservice teacher training are rarely studied. Results on students' learning from "guided reflection" during classroom practice found that the students gain of shared reflections of full lessons observations, if the reflection is related to theoretical notions [10]. Furthermore, studies have shown that preservice teachers value practice over theory when they enter the school contexts [11]. Findings also show how developing classroom management skills not always are trained to a desirable extent during teacher education [12]. The preservice teachers are to a great extent taking courses and discussing research at a very abstract level, difficult for them to base their work as teachers on. The gap between theory and practice might be a gap between the research approaches provided, as the majority of research offered seem to be far from teachers' daily work in classrooms.

One way to bridge the gap is to use action research to develop preservice teachers and teachers' theoretical understanding of their own practice [13]. Differences in focus of teaching, based on theoretical assumptions of what is the aim of education, have on impact of what affordances the teacher educators offer their students. In relation to the context at the school, where the students have their internship, those differences might also affect the teacher students' views of what is valuable knowledge for them. A longitudinal study, following preservice teachers' development into in-service teachers, shows how different cultural contexts (teachers from mainland China in Hong Kong) experience different focus when teaching [14]. While mainland teachers have a strong focus on teaching and learning, Hong Kong teachers focused more on reducing social problems in the classroom than knowledge development. Implicit differences of the aim of education affect the teachers' actions in the classroom and by that also what possibilities they give their pupils. To discern different approaches of what teaching and learning can be, requires a variation of theories presented and in what way they can be used as glasses to capture and explain patterns of classroom management. One difficulty is the lack of continuous in-service training for teachers at school, which results in limited possibilities to discuss the theoretical assumptions with supervising teachers at school.

In the Swedish teacher education, the internship period is examined by teacher educators from the university. One of the national goals is to analyze classroom situations based on theoretical assumptions, as teaching should be based both on scientific and empirical grounds. I was involved in a project, resulting in a case study at one teacher education program in one of the largest institutions for preservice training, on the examination of the students' vocational course. At the university, this is an oral examination at the school where the students have her/his internship. The unit of analysis was the meeting between the student, the supervising teacher at school, and the teacher educator from the university, a postlesson discussion about the student's teaching that the teacher educator has observed. Five such conversations were recorded, and the teaching situations have taken place in compulsory schools (student aged 13–16 years old).

4. A study of teacher students' views of theory

To create a scientific understanding of teacher students' views about theoretical studies during their education, a case study has been conducted. As the students' views

are in focus, variation theory [15] has been used to capture what aspects the students' have discerned, and what aspects they have not yet discerned. Aspects of importance to understand teacher students' views about theoretical studies during their in-campus training are captured during the analysis of verbatim-transcribed video-recorded data.

The aim of the case study [16] was to understand in what way performance-based oral assessment [17] of internship in teacher education contributes to teacher students' theoretical-based understanding of classroom instruction. Internship for preservice teachers is a key part of teacher education in Sweden, in total 20 weeks, which the students often value as the most important part of the 4–5 years of training. Performance-based assessments are performed at the end of each vocational training period, managed by the teacher educators.

4.1 The design and results of the case study

In this study, trialogue oral examinations, with teacher trainers from university, the mentoring teachers at the school, and the student are analyzed. The case study is based on a mixed-methodology approach [18]. The complete data collected consist of open-ended questionnaire answered by 33 teacher trainers from one faculty, questionnaire with closed questions answered by 27 teacher trainers from, and 5 recorded performance-based oral assessments, with preservice teachers, teacher trainers from the university, and the mentoring teachers at school. After completion of the course, the student should be able to reflect on his teacher role and professional development with relevant links to the theoretical studies. The questionnaire with close-ended questions was compiled and analyzed quantitatively, while the other questionnaire was analyzed qualitatively. The interviews were transcribed verbatim and analyzed qualitatively as well as quantitatively.

The result of the quantitative analysis of the interviews shows how the talktime was distributed among the participants: 41% students, 37% teacher trainers at university, and 22% supervising in-service teachers at school. The durations of the oral assessment had a range between 22.63 and 47.3 minutes. The teacher student was the one who chaired the meeting, as a result of a framework that regulates how the meeting shall be implemented. By that, the students took a leading role in the discussions. The supervising school teacher was in all cases the person who had least talktime at the meetings. The qualitative analysis of the oral assessment shows a prominent trait regarding challenges connecting theory and practice. Students explain how difficult they find it to relate what they study at the university with what they do at their school placement. The dichotomy between theory and practice is expressed:

> *Excerpt 1: (S – student, ST – supervising teacher, TE – Teacher educator)*
> *S: Should I write "balances between theory and practice"*
> *ST: We'll work on it (laughter)*
> *S: "Working on it"*
> *TE: You have a very good connection to the theories and then get it together with …*
> *ST: Maybe dare to release the theories too (laughter)*
> *S: Mm*

The student's difficulties to see how the classroom activities can be understood from a theoretical perspective are also described:

> *Excerpt 2:*
> *TE: But it should be visualized in practice and the big problem usually is that in practice you have practice and on the other hand you have the theory and you do not get these two parts together.*

> *ST: That's right*
> *TE: It is often actually at the expense of the theory, but here it might have slipped over*
> *S: Yes, I've become more careful when I'm here because I've always got the theory that sits and giggles*
> *TE: But just being here and now, at the moment*
> *S: Yes, exactly. But it is true that I have chosen a practical profession, more or less, so that the theory is where I can reflect on my practical occupation, but that's not what will guide me...*

The view of theory as something "that should not guide you" is far from what is stipulated in the course syllabus. Basing what happens in the classroom on theoretical assumptions, trying to predict and analyze what happened in the classroom, is far beyond this student's standpoint. Instead, the theoretical frameworks seem to hinder the student, and if the theories mainly are based on a methodological approach with observations and interpretations, theory can become an obstacle. It is impossible to "freeze" in a teaching situation, to take a step out of it, and to analyze it while it is ongoing. You have to be here and now, acting and responding to the students. This is yet another argument for using more practice-based theoretical frameworks, to guide the teachers' work with the students and provide with knowledge of different scenarios and their possible solutions.

> *Excerpt 3:*
> *S: I was actually thinking yesterday when I was planning the lesson, and then I sat thinking what I could relate to my theoretical studies ... what I'm using here. Then I wrote 'the next developmental zone' and 'student response', then it stopped. I only "I do not know what can relate to" and I wrote to a friend who had helped me with planning and just said "what more?" Because it's really hard to see. Then I know that I've gone through a thousand concepts at least, but I can not ... so I ... but that's what I'm doing now but I can not express it.*

The difficulties for students to understand how theoretical studies can contribute to their classroom activities were confirmed by the results from the open-ended questionnaire, where the teacher trainers at university describe the difficulties for students to reflect upon their teaching from a theoretical perspective. Finally, the result of the close-ended questionnaire shows that teacher trainers estimate that the mentoring teachers at school do not have sufficient knowledge of theoretical perspectives of relevance for their occupational training (2.0 out of 5.0), while they estimate the students' knowledge higher (3.18 out of 5) and their own knowledge highest (4.18 out of 5). As the supervising in-service teacher has a prominent role as models for the students, a model for knowledge exchange between university teachers and supervising teachers at school, offering them more opportunities to develop their theoretical knowledge, might enhance the theoretical understanding, as well as the use of classroom recordings used in the campus courses. Making it possible for the teacher students' supervisors at school makes it possible to create "communities of practice" [19] where they together can share what the students are offered at their in-campus training.

5. Modules merging theory and practice

Based on the findings above, preservice teacher education provided to enhance the students' qualifications as teachers has to face the challenge of bridging the gap between theory and practice, as well as provide students with theoretical tools and
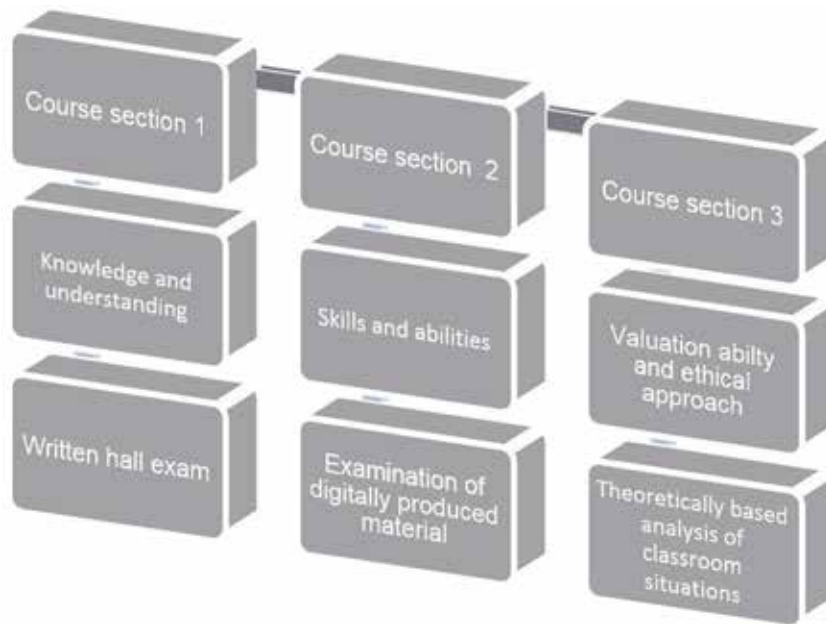
Figure 1.
Structure of a full-time 6-week module in general educational sciences (9 ETCS).

results of importance for their assignment as educators in classrooms. To bridge the gap, it might not only be of interest to give in-service training to supervising school teachers but also reflect on what the campus-based courses for future teachers are offering.

The results of the case study has, together with other research findings, based the foundation for designing modules in the teacher training program aiming to enhance preservice teachers' understanding of how theoretical assumptions can be used to predict, analyze, and revise teaching situations. The modules are based on blended learning [20], as the students are provided by a web resource where they can find lectures from all authors of the course literature, as well as other learning resources, such as study material produced by the Swedish National Agency for Education or other trustworthy sources. Finally, video-recorded classroom situations are used in the final examination of the course to help students to understand how theoretical frameworks can be used as tools for teachers.

The outline of the module is presented in **Figure 1**, showing how one 6-week course (6 ETCS including 3 weeks for each course section) is designed. During the course-weeks, the focus on student performance develops, from students' development of knowledge and understanding, development of skills and abilities, and finally focusing their evaluation ability and approach.

During the course, the students have access to several different learning resources. First of all, the Learning Platform (Canvas) provides the students with course-specific texts, lectures, and learning researches. Besides that, a group of general capabilities are running like a track in all courses (e.g., academic literacy, new arrivals, library support). In all course sections, different form of work is introduced, such as the following:

- Individual reading of literature

- Student workshop for joint reading of literature or problem solving (student lead)

- Prerecorded lectures at web platform (the authors of the literature, teacher educators, pod)

- Prerecorded panel discussions (course leader, teacher, and student)

- Teacher-led seminars to further develop students' learning

- Student seminars

Below, examples of the design are presented to give a view of how the parts of the module strive to enhance both theoretical and professional development preservice teachers by merging theory and practice during the course moments.

5.1 Section 1

During the first 2 weeks of the module, the students' knowledge and understanding, mainly of core concepts and frameworks used, is focused to create a shared knowledge base for further studies. One session of the students' own seminars could be designed as follows:

> *Wednesday xx/x*
> *08.15-12.00 Student seminar*
> *Study the Teachers' Movie (28 minutes) about leadership in the classroom and discuss how the theoretical assumptions highlighted in the course literature are expressed in the discussion of why leadership in the classroom is necessary: http://urskola.se/Produkter/196528-Larlabbet-student-Ledarskap-i-klassrummet. Compare your own examples of situations, and in what way you would act differently today if you had the knowledge that you are expected to develop within the course.*

After this brief practice-based task, the students are supposed to watch the lecture of the author of the first course book. Whenever the students want to watch, the prerecorded lecture is uploaded to the web platform and can be watched several times, also together with supervising teachers at school. After this part, the students meet the teacher educators to deepen the discussions of the course book, in relation to the authors' lecture and the other learning resources.

> *1315-16 Post lecture-seminar*
> *At this seminar, which is a teacher lead, you are going to discuss how knowledge about leadership, communication and conflicts in school has been developed in relation to the course objective, identify and describe various key concepts and perspectives in pedagogical leadership, social relations and conflict management. In what way has the course literature contributed to a theoretical understanding of the theoretical perspectives that can be tools to better understand and predict what is happening in the classroom? What situations do you feel you have more preparedness to handle in future school situations?*

During a week, the students in total have at least four seminars including pre- and postseminars adjacent to the video-recorded lectures. Each period of 2 weeks ends with a smaller examination, in which during the first section, the students are supposed to show their conceptual knowledge of the content in focus. This is important to create a joint understanding of the theoretical approaches presented and forms the basis for the continued work.

5.2 Section 2

The second section of the module aims to develop the students' skills and abilities. The design of the work is similar to the previous section; however, during these 2 weeks, the students are expected to show their skills in relation to the theoretical approaches in focus. During the seminars, the students are expected to be more active than in the first part. They have to show examples of how to put the theoretical knowledge to abilities.

> *Tuesday xx/x*
> *10.15-12.00 Pre-seminar*
> *Before this seminar you should have read the report "Learning from the best: an ESO report on Swedish school in an international research perspective" by Åman (2011), as well as prepare 3-5 questions based on the literature in order to get a deeper understanding of the content. What are the similarities and differences between today's school in Sweden and other countries? Does the report give you good prospects for meeting the learning objective: "Analyze the school's activities in a national and international perspective"? The seminar is led by teacher educators.*
>
> *1300-1530 Sweden's school in an international perspective*
> *This lecture is linked to the report "Learning from the best: an ESO report on Swedish school in an international research perspective" by Åman (2011).*

The lectures are followed up by postseminars where teacher educators, related to the goals in the syllabus, deepen the discussions to enhance the students' knowledge development.

> *13.15-16 Post-seminar*
> *At this seminar, which is led by a teacher educators, how scientific and evidence based knowledge has been developed on the basis of relevant governing documents is discussed. At this seminar you will discuss in particular whether you have developed your knowledge in relation to the objective "Analyze the relationship between research and empirical based knowledge for the profession".*

The section ends with an examination, designed to show the students' skills by doing a smaller school development project to be analyzed from a theoretical perspective.

5.3 Section 3

In the final section of the course, the students' abilities to value and ethical approach in relation to their professional development as teachers. By that, this third step finalizes the students' understanding of the theme of the module, for example, classroom leadership and management. Based on their conceptual knowledge of the field, they have shown proof of their skills in relation to their profession. In this last step, they are supposed to value their knowledge and skills to examine them in an ethical perspective, which is practiced in different kind of activities.

> *Monday xx/x*
> *10.15-12.00 Student seminar*
> *Before this seminar, you have to study the module on the learning platform about writing a short information text based on proven experience and scientific basis for informing parents about the school's value base (included in the academic literacy*

module). To develop your skills, you will practice your ability to value and ethical review, which will be tested in exam three. You will also have access to classroom movies to analyze regarding the school's value base.

The examination of the students' evaluation and ethical review abilities are made close to their professional role as becoming teacher. The examination is based on the theoretical frameworks studied in the course and through course literature.

Examination 3
Analysis of classroom situations based on human rights and child convention by a video-recorded classroom situation. The analysis should be based on the conceptions and theoretical perspectives studied in the course. Valuate and make an ethical review of the situation analyzed. Max 2 pages, excluding references, should be uploaded on the learning platform within a time limit of 4 hours after the lesson has been released on the learning platform.

5.4 Final remarks

The design of general educational courses in the teacher program is always a challenge. There are more topics of interest for teachers than could possibly be included in the training, so how to choose what is most important? The risk is that always these courses tend to be fragmented, with several small parts different to connect to each other. Making the content both coherent within a theme and connecting the theoretical parts with the preservice teachers' professional role in the future is another challenge. This is a humble try to overcome these challenges, and by that provide teacher students with knowledge they can understand both on a theoretical and practice-based level.

6. Conclusion

The challenge to provide society with qualified teachers is global, and the interest to begin teacher education studies is low in many countries. In, for example, Sweden, teacher education has become a university program. This guarantees the scientific quality of the courses given, which hopefully gives the students a basic scientific knowledge of teaching and learning. But has it provided teachers with better skills about teaching and learning in the classroom? There is of course no easy answer to give, but it highly depends on the interest and quality of teacher educators. When teacher education was a professional education, it was provided by teacher education colleges instead of universities. The lecturers had a strong relation to schools and experience as being teachers by themselves. This can of course be problematic for the development and critical stance, which enables changes of how school should be working. On the other hand, there is also a risk of quality decrease if the theoretical approaches provided for preservice teachers are descriptive and interpretative, leaving the teachers without any answers of how to act in the classroom. In combination with teacher educators at universities, without own experience of teaching outside university who determine what is of importance for teachers to learn, the gap between theory and practice can easily be insurmountable. Then it does not help how qualified the teacher educators are regarding scientific knowledge or how qualified they are to teach at university level. The importance to provide teacher students with applied research results and to give them scientifically substantiated results guiding them to enhance teaching and learning in schools is crucial for the quality of teacher education. Changes are

needed to attract young adults wanting to become teachers. In countries where teacher education is situated at universities, the teacher students might lack the opportunity to meet teacher educators who have a background as teachers before being researchers. Then they do not meet role models they can identify with before they are on internship and meet teachers. The expression that schools are "the real world" and university is "a fictive world" is in not difficult to understand from teacher students' perspective.

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Chapter 5

Prospective Teachers' Role in the Construction of Authentic Pedagogical Content Knowledge

Mamsi Ethel Khuzwayo

Abstract

The views and experiences presented in this chapter highlight the initiative of the teacher educator to adapt ideas that characterise twenty-first century teachers. An emerging trend in teacher education and training pioneers critical thinking and reflective classroom practice which are considered to be pillars for the development of competent teachers who are equipped with theoretical and applied competences. The foundations of conceptual ideas shared in this work are: 'engagement scholarship' and 'critical reflections', which propose the discourse in the education and training. Critical analysis of these two broad concepts provides a conceptual framework to articulate techniques and strategies to engage prospective teachers in collaborative learning activities. The observations of engagement and critical reflective collaborations of students were analysed. The findings of the action research contribute to the practical knowledge of engagement scholarship and development of critical reflective practitioners. This chapter upholds the perception that the shift from traditional practices and strategies entails analysis of the needs of teachers in a democratic, open and non-discriminatory society. The findings of the action research prove that prospective teachers have the potential to develop pedagogical content knowledge, which is relevant to real-life classroom experience.

Keywords: pedagogical content knowledge, authentic, prospective teachers, construction, engagement

1. Introduction

Researchers of the department of basic education point out that teachers who are trained at universities are frequently too theoretically oriented and are often unable to adjust to the curriculum innovations brought about by new government in 1994 and the iterations of CAPS since that date. This finding suggests that effective change towards learner-centred instruction cannot be brought about by governmental fiat or promulgation of policy or other directive from on high. For real change to take place, it requires the willing cooperation of enlightened practitioners who comprehend the need to move towards constructivist priorities embedded in OBE and its later manifestation in CAPS. The fact that university-trained teachers are demonstrably unable to adopt and adapt to the notions of a learner-centred classroom suggests that training, which is overly theoretical, prevents the application of new approaches and flexible adjustment to change. Research proves that there is no reliable correlation between highest professional or academic qualification and effective teaching and learning in classrooms. This paper is situated against

the broad political landscape of educational change: milestones of the path to liberal values and practice are discernible in the course of the argument.

The incapacity of teachers to implement curriculum changes has been scrutinised from various perspectives in South Africa and the United States of America. In South Africa, academics accused the state of adopting radical curriculum changes without adequately preparing teachers [1]. Researchers in America draw attention to the concept of 'back to basics' which emanated from difficulties that teachers encountered in implementing the progressive principles underpinning the post-1994 curriculum. Proponents of contemporary progressive philosophies uphold the belief that educational change is not an event but a process that requires collaborative effort from academic institutions, society, the state and students to find solutions pertaining to the demands and challenges facing local and international societies. This work pioneers the view that if change is to be a reality, student teachers in their initial education and training ought to be provided the space to make their own contributions. The students are the future work force and practitioners in classrooms; they should build intellectual muscles to partake in finding solutions to the problems of classroom practice. The principle of work-integrated learning should not be a ritual in teacher training but actual engagement with authentic experience of the work place.

Critical reflections on the practice or implementation of ideas in practice are essential in ensuring that the results or outcomes are achieved [2, 3]. Teachers in any country are considered to be important agents in educational change and the obligation for transforming the society through education rests with teachers [2]. Carl [4] argued that for teachers to be a valuable resource in society, it is necessary to allow them to play an active role in the construction of knowledge; rather than being recipients of ready structured knowledge. In the context of curriculum development, Carl [4] points out that teachers should demonstrate competence in selecting and sequencing content knowledge according to the socio-cultural and economic needs and cognitive capabilities of learners. Twenty-first century teachers, according to Fejes and Nicoll [2], should be proactive, lifelong learners, critical, creative and innovative thinkers, altruistic and reflective. These ideas beg the question 'how?' The 'how' question invites teacher educators internationally to seek mechanisms and techniques through which to envisage twenty-first century teachers' preparation. This study shares a perspective of South African teacher educator's experiences of the students in the initial teacher qualification programme contributions to the development of pedagogical content knowledge.

2. Background

The conceptual framework established through the critical synthesis of literature enabled me to identify certain key observations and perceptions gathered from the study. The conceptual understanding of active participation, social interaction in learning and constructions of knowledge is framed within the philosophical views about teaching advocated by Foucault, Freirean and Deleuze and Guattarian school of thoughts highlighted by Fejes and Nicoll [2] and Semetsky and Masny [5]. Freirean idea of praxis in learning points out that knowledge construction should focus on daily-life experiences of the learners, and learning processes should develop problem-solving skills which enable learners to manipulate authentic life experiences. In the same narrative, Foucault scholars Fejes and Nicoll [2] express the view that construction of meaningful knowledge requires active involvement of learners which means that learners are not supposed to be recipients of already crafted ideas contained in textbooks. Heller and Kaufman [6] encourage learners to navigate knowledge through inquiry- and problem-based knowledge construction which enables students to develop competences of critical reflection, logical reasoning, creative and innovative thinking ([5], p. 2). The repertoire of ideas gathered

from these philosophical views and the critical pedagogy of the Freirean school of thought provided the study with a conceptual base to explore the possibilities of engaging pre-service teachers in activities which revealed students' perspectives of professional practices for the changing society.

The importance of these ideas to learning in teacher education and training enables students to work deductively, from their own concrete experiences and observation of classroom practice. The search for alternative practices is informed by the experiences from the authentic work place observations. The concrete experiences provided students in the study with the terms of references in their argumentative dialogues and discussions. The critical reflections and logical thinking were based on actual examples; they were able to substantiate their contestations for a theoretical base for an alternative pedagogical content knowledge. Four groups identified their own philosophical and theoretical foundations for their pedagogical content knowledge, which encompasses: (i) nature of the learner in a cosmopolitan and democratic society; (ii) knowledge construction; (iii) teaching methodology and (iv) classroom environment.

The first concept that I need to define is 'prospective teachers' which is used in the title of this chapter. Observation of the culture of teacher education and training in South Africa brought to my attention that some students find themselves in the teaching qualification programme not by choice or vocation but due to various other often pragmatic or pecuniary reasons. Informal inquiry from students about the high dropout rates of students after the school-based teaching practice, the responses to the question highlighted to me that students do share their concerns about the pressure they experience from parents regarding career choices. It became clear to me on the basis of the information gathered from students that most of the students who do not come back after the 2 weeks of school-based teaching practice fall under this category. The assumption was made that not all students enrolled in the teaching qualification programme could cope with the challenges and demands of the classroom environment and practices of the democratic and human rights dispensation. The concept of 'prospective teachers' in this study is used to identify students who demonstrated a passion and aspiration to become teachers; no matter what it takes.

The rational for the study is to enquire into the value of opening a space for students to evaluate the knowledge taught to them in their qualification programme. The design of this study was motivated by the various questions that students asked regarding the relevance of theoretical and philosophical knowledge in the education course. Examples of questions are:

Where is the knowledge of these theories applicable; from classroom practice, we have not seen teachers applying this knowledge? Why then are we taught about theories and philosophies that have no relevance to our practice?

3. Context of the study

The study was undertaken to address the concerns of prospective teachers regarding the content of the course I teach in the qualification questions programme. The philosophical foundations for curriculum changes in higher education in South Africa advocate student-centred learning which is underpinned by cross-field exit outcomes which indicate the competences to be demonstrated by students at various levels of learning progression in education and training gazetted by the South African Qualification Authority (SAQA) 2001 and Higher Education Qualification Framework (HEQF) [7]. Coupled with the exit-level outcomes, teacher education and training encapsulate in the learning programmes the development of professional expertise in prospective teachers to perform six roles stipulated in the Minimum Requirement for Teacher Qualification (MRTEQ) 2015. This study was part of an exploration of techniques and strategies; to shift

the perception of learners that lecturers are the ones who should lead the process of their learning and to prescribe content to be covered for test and examination.

4. Theoretical framework

It is critical to highlight the theoretical principles that were used to guide the process of designing the study, the methodology and analysis of the finding. The interrogation of Mezirow's theory of transformative learning provided an understanding that learning for adult learners differs from that of young learners Mezirow [8]. Transformative theory advocates that adult learners should play an active role in their learning and be responsible for their own learning. Proponents of this theory [9] commend transformative learning in promoting self-reflection, inquiry, problem-solving and empirical-analytic strategies or action research as main strategies for exploring new ideas and for re-framing different perspectives. Mezirow proposed that adult learners are expected to demonstrate meta-cognitive abilities, which are the highest levels in the hierarchy of cognitive development of an individual. In this view, meta-cognitive abilities are evident in adult learning when students are able to manipulate knowledge skilfully and competently to meet the challenges of real-life experiences posed by the new environment. Synchrony was established from the synthesis of the views offered by proponents of meta-cognition and transformative learning [10] which assert that adult learners should be provided a space to analyse critically and examine perspectives; so as to find out the causes and effects or rationale underlying knowledge learned [11, 12].

5. Research design and data collection procedures

This study was planned upon the premise of the qualitative research paradigm and methodology which implies that data collection procedures adopted for the empirical research focused on eliciting perceptions and views; based on the personal experiences of the students who participated in the groups discussions. The study targeted prospective teachers in the second year of the bachelor of education professional degree who participated in classroom observations and performed classroom practices under the supervision of the mentors in high schools in diverse socio-economic environment. It is compulsory for students in their initial teacher education and training to be placed in school for work-integrated learning and experiential learning. The criteria used in the selection process of the sample were: students should participate voluntarily, be willing to share experiences and to engage in all activities and should have experience of a private or public schooling in South Africa as learners and student teachers.

The design of the study adopted the following patterns. First, students formed four groups of five individuals each. The philosophies covered were: idealism, realism, existentialism and pragmatism and coupled with these philosophies were theories of learning, behaviourism, cognitivism, constructivism and social constructivism.

The model called dialogical argumentative instructional model (DAIM) was used in designing the activities for cooperative learning. The groups aligned their choice of philosophy with the theory of learning which in their view could assist them to understand the classroom practices of the democratic and human rights dispensation. Ethics were considered in the presentation of students' comments and examples of the verbatim expressions. It was this purpose that pseudonyms are used in this piece of work. The students organised themselves in the following groupings:

Group A: decided to focus on idealist philosophies and cognitive theory.

Group B: focused on realist philosophies and cognitive and cognitive constructivist theory.

Group C: focused on pragmatist philosophies and social constructivist theory.

Group D: existentialist and social constructivist theory.

Task: students were to review literature from online sources, for example, journal articles and books, to collect perspectives of scholars about the philosophies and theories of learning.

Evidence 1: students develop the factual and conceptual knowledge and presented notes in a power point computer programme. The presentation covered three key areas of pedagogical content knowledge indicated in the article by Killen ([13], p. 31) and these are (i) knowledge about the content, (ii) knowledge about learning and (iii) knowledge about teaching.

Evidence 2: students organised discussion where they critically reflect on their notes and present interpretations. These discussions took place during times convenient for students; they were recorded and the videos were submitted as proof of the discussion.

Evidence 3: Verbal presentations of arguments and debates were conducted in plenary sessions. Groups took turns presenting during the question and answer sessions.

6. Data analysis

The data gathered as perceptions and perspectives from students' written texts and verbal arguments in the phases illustrated in the diagram in **Figure 1** were analysed through qualitative means. The data were categorised and identified themes were highlighted and noted.

6.1 The contributions of groups A and B

Table 1 presents the analysis of data gathered from group A under the key themes that address pedagogical content knowledge from idealist and behaviourist perspective.
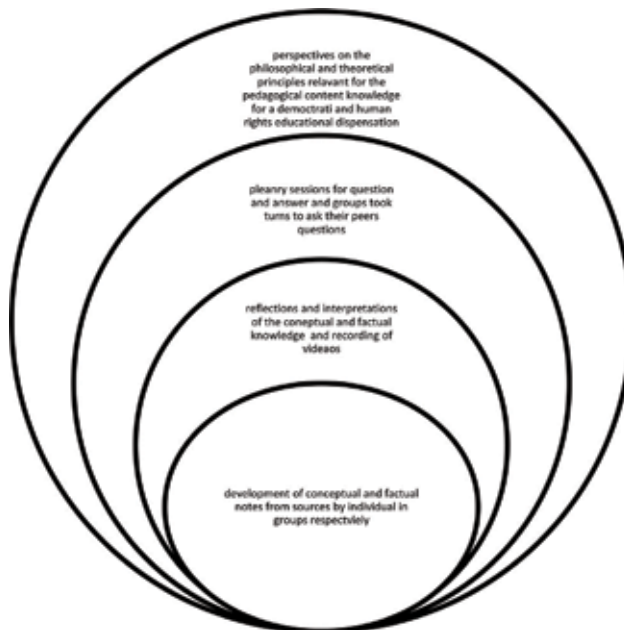

Figure 1.
The phases and the evidence produced by students in their cooperative engagement in the process of developing pedagogical content knowledge for prospective teachers' education and training.

Idealism/realism and behaviourism	
Conceptual knowledge	**Interpretation and view**

Man is born with innate ideas
Human mind develops through abstract thinking
Ability to think deductively and inductively facilitate generation of ideas
Truth is arrived at through reasoning and questioning
Behaviourism theory was generated by conducting experiments in animals such as rats, pigeons and dogs
	Knowledge about the learner:
	  Freedom of learners is possible through recognition of their abilities to think.
	  Freedom and liberation of the learners is in the opportunities to explore the world through deductive methods in order to discover their cognitive, intellectual potential.
	  Learners have a variety of ideas which could be actualized through logic and critical reasoning.

Question-and-answer method Deductive methods and inductive Teacher in still moral and ethical virtues in learner	*Knowledge about teaching:* Teaching is about programming what to be learned. Our observations of teaching in classroom taught us the teacher is in charge. Teachers decide on the content and teaching methods. Teachers are the authority of knowledge and they spend more teaching time maintaining order and discipline. Teachers are undemocratic and not considerate of the leaders freedom to explore and to generate their own ideas from the programmed content

Factual knowledge is based on abstract thinking and speculation
Knowledge is absolute truth and universal. Moral and values are the basic foundation of truth
Realism considered knowledge as real and concrete evidence based on the laws of nature.
	Knowledge about teaching
	  Freedom and democracy promote contestation and debates. Promotion of the idea that knowledge of infallible has no space in democratic society.
	Knowledge about environment
	  Knowledge and environment are inseparable. Realist is of the view that learning is about get to know and understand environment through senses.
	  Subject knowledge should be what learners generate from what they see, touch, experience from their surroundings and come up with ideas based on real and tangible evidence from reality.

Table 1.
The analysis of data reflecting students' thought that was aligned discussion with absolutists' philosophies and pedagogical theories.

6.1.1 Finding and interpretations from written texts

The effort demonstrated by students in searching ideas and competence in creating arguments based on strong conceptual understanding of the idealism philosophy and behaviourism theory was phenomenal. The relevance of the analytical comparison between idealist and behaviourism in the context of classroom practices in the democratic and human rights dispensation was noted. The findings developed the perceptions that students need a space to apply critical thinking skills and critical reflection about the learning they construct. The text presented by students was evidence of independent thinking and abilities to conduct critical reflections on the observations of classroom practices during their school-based work-integrated learning. Interpretation of conceptual knowledge in the context of socio-economic and political changes was an indication of the ability of students to manipulate knowledge in relation to the reality in real-life experiences. The intended outcomes of the learning process were achieved and the evidence was the students' ability to work out the rationale for having certain philosophical foundations and theoretical knowledge being part of the content for educating and training of prospective teachers. Students made their own recommendations about how views of the idealist could be crafted into the pedagogical content knowledge in the process of preparing teachers for democratic and human rights educational dispensation.

6.2 Contribution of groups C and D

Analysis of data identified congruence between the views and perceptions based on the conceptual knowledge they gathered from sources regarding philosophies and learning theories (**Table 2**).

Pragmatism/existentialism perspectives Congruence in the perspectives and interpretations	
Conceptual knowledge	**Interpretations and views**
The ideas of pragmatist promote values of democracy in education. Education is an active and constructive phenomenon. Education is productive and progressive and not reproductive (John Dewey) Constructivism and cognitive learning theory promotes active participation, engagement of learners in construction knowledge through problem-solving, inquiry and discussions. Cognitive theory emphasises acquisition of skills for cognitive development according to Blooms Taxonomy (low-order and high-order cognitive skills) Jean Piaget and Jerome Bruner Similarly, the existentialist ideas advocate freedom to choose, development of subjective knowledge, recognition of interest, beliefs and experiences	*Knowledge about the learner:* Students perspective of the learner from the philosophy and learning theory was: Learners are unique and independent individual in terms of interest and abilities. Learners are by nature active and desire freedom to pursue their own interests. They are eager to participate in activities that make meaning to them about their surrounding *Knowledge about teaching* Approaches to teaching ought to be democratic in order to give learners opportunities to debate and critique the book knowledge or even the teachers' interpretations. Constructivist teacher and pragmatic inclined teaching methods promote cooperative and collaborative teaching. Our views about classroom teaching are influenced by pragmatics philosophy. We believe in an atmosphere that promotes freedom to ask questions and challenge opinions *Knowledge about content knowledge* Paulo Frere was correct to advocate construction of knowledge that resonates with learners' experiences. Freedom to choice context for learning could enable learners in high school to discuss real-life world issue instead of structured topic decided upon by someone else. *Knowledge about environment* Knowledge construction cannot be delinked from the environment and everyday life experiences of the learners in their communities. Problem-solving and inquiry-based learning should enable learners to unleash ideas which our peers of idealism referred to.

Table 2.
The analysis of data that indicate congruence in the views and perception regarding philosophies and theories of learning.

6.3 Divergence views and perspectives gathered from students' verbal presentation during plenary sessions

Group B and A members' comments supporting principles of realism and cognitive theory in conceptualisation of pedagogical content knowledge for initial teacher training in the democratic and human rights dispensation are captured as in the paragraph below:

> *Student Xabiso: Realist ideas are about teaching towards the essence of knowledge and its purpose in the real life world. Teachers who are imbued with the ideas or influenced by the realist idea will know that learning is about exploring reality in order to adjust environment or change the environment. Reality could be the diverse encounters that form barriers or problem, which require careful analysis and examination in order to create something to address those problems or challenges. Student V: The implication of the realist view and cognitive theory in the*

mediating process is for teachers to first package subject content knowledge under various contexts in which learning should be focus. This approach will enable learners in the subject to relate the knowledge acquired and the processes used to arrive at understanding it with the real world beyond the classroom.

Student Paul: Principles underpinning acquisition of skills and conceptual knowledge from the cognitive view point indicate that learning is a stratified process, meaning that it develops in a continuum from low order and high order abilities that determine maturity which is emphasised by Cognitive theorist such as Jerome Bloom.

Students Morgan: In our view, the school curriculum should not be time and assessment driven, for the reasons that learning of knowledge and skill development takes time and it depends on the learners' levels of maturity. The development of knowledge and skill development, in our view is not possible if teaching and learning is confined by time schedules of thirty minutes.

6.3.1 Comments and argument of students in groups C and D in defence of their views and perspective on pragmatism and cognitive constructivism and social constructivism

Prospective teachers who formed this category firmly believed that a transforming society which upholds the values of democracy and freedom should adopt views and ideas of the pragmatist philosophy. In their own convictions and reflections of pragmatism and social constructivism, they argued:

Student Sebastian: The principles and values of the democratic society could be better promoted if teaching, learning, classroom environment and subject content knowledge could be directed by the views and ideas of the pragmatist principles. We have concluded that teachers in a democratic society should be open to criticism, debates and argument about learning content and accept contestations and diverse perspectives, from colleagues and learners. The classroom should be viewed by teachers, learners and school managers as an environment of freedom to explore new ideas, invent new knowledge and to verify or critique views in knowledge that promote hegemony, inequality, social injustices and exclusion and bias and prejudices.

Student Hluma: The education and training in this philosophy could mean identification of areas from the society that need to be critiqued and verified. Investigations and explorations are considered by the group as vehicles for acquisition of ideas, facts and views which constitute the conceptual, factual, theoretical and procedural knowledge about the disciplinary knowledge. Whereas the alignment of skills should enable learners to apply, test, experiment and verify factual knowledge in order to construct new knowledge. The testing and verification should be provided contexts based on learners real life experiences or physical world. These practices should be driven by learners' free will and interest.

Student Rumber: Active participation should not be a slogan to us during our training but if we are influenced by these views and ideas nothing can stop us from bringing change in the classroom practice to make democracy a reality for learners in classrooms.

Student Tozi: Prospective teachers' choice of philosophy and theory was influenced by their critical review of existentialist philosophy and social constructivism theory. Their reflections highlighted the following views about the pedagogical content knowledge required for preparing teachers for the transforming society.

7. Interpretation of findings and discussions

The arguments and comments of students in both the written texts and during the plenary session were summarised and the following issues were identified about engaging students in the development of pedagogical content knowledge for initial teacher education.

7.1 Implementation of competence-based teaching and learning in higher education

7.1.1 Integration of teaching, learning and assessment

The study highlighted the prospect of success in integrating learning, teaching and assessment. The role played by the lecturer in the entire process of learning was minimal. Through cooperative work, students identified their own philosophies and learning theories. The formation of groups was driven by their perspectives and interests. The role of the lecturer was only to collect evidence of learning per stage in the process and provide qualitative feedback on the work produced by groups. The lecturer was more of the overseer and the mentor. The assessment part was to observe and to monitor the development of meta-cognitive skills and competences, for example, developing of conceptual knowledge through intense consulting sources, guard against plagiarism, development of skills of analysis and synthesis as students reflected on their school-based experiences and conceptual knowledge. The other skills and competences that were assessed were: communication and academic literacy skills, as students presented their arguments and contested their peers' ideas in plenary session. The assessment of the competences was based on the criteria proposed in MRTEQ: 2015 to measure vertical progression in the development of competences in higher education. These criteria complement the performance levels asserted in SAQA for curriculum development in higher education institutions. Identification of the outcomes for learning the development of the task and alignment of these with the assessed criteria is recommended in Biggs's constructive alignment theory. The study served the purpose of testing the practicability of implementing the principles of this theory as well.

7.1.2 Theoretical and applied competences

First, reflections of students on their experiences during school-based classroom observation and practices indicated that students were committed to inquire about the link between theoretical knowledge and practice. The undertaking of the study to engage students in the activities was inspired and also capitalised on their desire to know. The policy on the Minimum Requirement for Teacher Qualification (MRTEQ) in South Africa proposed the blending of theoretical and applied competences into the initial professional education and training of teachers in South Africa. The purpose of this integration or blending is to enable prospective teachers to be critical practitioners, and to enable teachers to manipulate curriculum and educational changes. Integration gives teacher educators a mandate to re-think and to re-conceptualise teacher education and training to prepare teachers who are competitive in the world. The findings of this study provide evidence about the possibility of integration of theoretical competences and applied competence. Concerns of the students about teaching from the learner textbook highlighted the ability of students to reflect on the practice of classroom practices: 'the reason for boredom and dislike of classroom by learners we experienced during our work integrated learning could be linked to the beliefs of teachers demonstrated in their approaches of classroom

practice'. This argument overwhelmed the plenary session when students proposed that as the new generation of teachers, it is incumbent upon them to ensure that practices of teaching and learning in classroom are relevant to the forces of democratic changes. The proposal advocated liberating learners from textbook knowledge to a more open curriculum which will enable them to explore world knowledge. The views and opinions expressed by students reflected critical thinking based on the philosophical ideas of Paulo Freire, Dueleze and Guattari and John Dewey of the open curriculum or praxis. The strong criticism of structured knowledge in chapters for schools was noted. To students, the relevant pedagogy for the changing times is the one that promotes exploration, critical thinking, and creative thinking, inquiry and self-discovery knowledge. Findings of the study confirmed the views pioneered by Carl of empowerment of teachers through curriculum development.

7.1.3 Evidence-based transformative learning through dialogical argumentative instructions

The shift in the students' thinking patterns after the task was evident in the comments and in reflections such as the following:

Active participation and enthusiasm demonstrated by students in generating arguments through reflective thinking was based on what they decided upon to be the core ideas about each philosophy and theory was remarkable. This experience revealed the unfairness of our delivery of disciplinary and pedagogical content knowledge to our students through lectures. The abilities and skilfulness of students in collaborative work through all the stages of the task indicated to me that in the period of 10 years, I have been suppressing students' creativity and critical thinking skills through the preaching of knowledge in podiums in lecture theatres and treating learners as my audience. The plenary sessions organised by students depicted the conference meeting where scholars quote ideas of the renowned proponents of philosophical ideas to support their arguments.

My observation of the altruistic disposition of students in debates and discussion propelled by their own choice of content and context confirmed Mezirow's views about transformative learning which advocated that adult learners should be perceived differently from school learners in that to them learning should enable them to manipulate knowledge to solve problem and challenges in the real-life world. This assertion by Mezirow was evident in the manner in which students transferred conceptual knowledge of philosophies and theories into the conceptual understanding of the professional practice in the evolving world of educational practice. The attitude of the students of being negative about the teaching of various philosophical ideas about education and its practice was noted in the verbal presentations and as they answer questions posed by their peers. The critical reflections and inquiry learning were the main learning strategies which transformed the pre-engagement activity perceptions and attitudes. Students found it pleasing to discover things on their own without being given notes to read. Reciprocally, I derived encouragement from the commitment and enthusiasm demonstrated by the students to take their own initiative to understand the relevance of theoretical and philosophical knowledge in the pedagogical content knowledge for teachers.

7.1.4 Reflections and comments of group A during plenary sessions

> *Student Buya: It is advocated in idealism that every individual is born with ideas.*
> *Ideas are generated in the mind. The ideas are revealed through inductive and*
> *deductive process. The human mind has an ability to operate with concepts that are*
> *not found in the real world, which eventually can manifest through creativity to be*

real and physical. These ideas about the nature of humans should be entrenched in all theoretical content knowledge about who a learner is. The description of a learner from this perspective rejects the perception that learners are empty vessels. The view of the idealist is that individuals are born with the ability to think abstractly which implies that teachers should accept that it is in the nature of the learner to be inquisitive about things in their environment.

Students Kombi: In the context of pedagogical content knowledge this idealist perspective implies that as teachers we should not influence or imbue learners with the book knowledge but to use knowledge related to learners' interest as the point of departure to assist learners to use the mind to develop abilities that could enable them to think creatively, logical and critical. In that approach learners could question anything they found interesting by: asking questions—working out relevant assumptions—deciding on methods to arrive to the solution or truth. Abstract thinking through deductive and inductive methods of Socrates learners of the democratic and human rights dispensation could identify injustices in the social, economic and political systems in their societies.

Student Zingi: Our own reflections on idealism and cognitive theory is that they both focus on the development of the abilities of the mind to think from an abstract realm and to create models that present the images of such mental models. To use an idealism philosophical principle in teaching assists learners to use their minds to verify what they see, touch, and experience from the physical world, and to develop new ideas as they work in a deductive manner (creating hypothesis and testing or verifying the known truth). Adopting the principles and methods of idealism and cognitive principles could enable us, prospective teachers to develop intellectuals who are independent and creative thinkers. Learners will not reproduce what is known but instead they will use such knowledge as a springboard for further research. Application of these principles in classroom teaching could make every subject content knowledge taught to learners meaningful and relevant to them to solve problem and to be self-reliant citizens.

Student Zuleigha: According to Piaget, the principles of cognitive theory are that learners are unique so they have different capabilities. Every learner is born with potentialities which through the process of actualisation mature to become abilities. Self-realization is the output of the process of actualisation. The teacher's role in the classroom activities has to be minimal to allow the learner to self-actualise, which is termed maturity or self-realisation. The role of the teachers in the mediating process in our view is to prepare activities based on the learners' interest and the levels of maturity of their abilities.

7.1.5 Integrated learning (situational, pedagogical and disciplinary learning)

The collaborative engagement in the dialogical argumentative instruction activities with the skill of working out a synchronic synthesis of real classroom practice in South African schools was significant. The influences of the knowledge about contesting views of philosophies about what teaching and learning ought to be enabled students to analyse issues which they considered impaired the advancement of their abilities and competences in understanding subject content knowledge. The teaching of knowledge out of real-life contexts was described by the student as the main disabler in the learning process [13]. The other factors that came under serious scrutiny were the techniques and strategies of teaching which in their view, teachers

unwittingly or wittingly used to indoctrinate them with meaningless factual knowledge which does not resonate with their choice of future careers nor to equip them with relevant skills to make adjustment in the changing world.

> *Student Vuyani: to support the view of the abstract and contradictory factual knowledge in the field of Science: "during my school days I was puzzled by the fact taught in Physical Science and Geography about universe. The sun is said to be at the centre of the universe and the paradox to me is; the very sun that is I am told does not move is said to be rising from the east and sets in the west. I asked my teacher about this mystery and fallacy but instead of engaging with me I was told to know this as indisputable reality"*

The students, who were inspired by the realism school of philosophy and cognitive theory of learning, critiqued learning of knowledge which does not make meaningful sense and teaching methods that suppress learners' inquisitiveness about their surroundings or environment. To this group of students, teaching and learning should assist learners to unlock reality through first-hand experience.

> *Student Dora: The perception we developed through our reflection is that it cannot be true that learners are ignorant about what is happening in socio-political, economic and environmental changes that are witnessed globally. Learners of the millennium era are exposed to multimedia and as a result they could not be indoctrinated with views that are remote from what they experience in their surroundings. This implies that learner in contemporary times should not be treated as inactive spectators of what is taking place. In our view behaviourist theory is relevant in as far as moral and value generation is concerns for example: discipline and conduct which is required for effective learning and maintenance of order in classroom.*

> *Student Kula: The operant conditioning of Pavlov and Skinner are outdated because they conducted in animals which cannot think and reason like humans. Learners are inconstant engagement with life around them so therefore it could not be true that they do not have ideas to contribute towards improvement of their lives and space.*

The emphasis on context-based teaching and learning in students' plenary session shed light onto what students insinuate in their arguments about the nature of content knowledge and environment. The student reflections which pointed directly to what would underpin their own philosophy of classroom practice were captured. These views provided guidelines on what supervisors of work integrated learning will be likely to witness in these students' classroom practice.

7.1.6 Analysis of concept of a 'learner' with the twenty-first century teachers

The students' dialogical arguments pointed to the knowledge explosion and the revolution in the technological advancement in the global village as the context to be used to define the twenty-first century learners.

> *Student Erica: The twenty first learners are characterised by: freedom of choice and self-driven learning, the former describes the learners as individual who should be considered as active participants in the learning environment. The freedom of choice, in the students view, should be the principle that underpins curriculum development and its delivery in classrooms. Further, this principle allows learners to part take in the selection and organising of learning content and the choosing*

of techniques or strategies of teaching and learning. The self-driven learning was explained in the context of the argument in terms of knowledge construction, whereby learners identify real life experiences which they consider significant and interesting to know. This learning is made possible through advanced technological devices such as i-phones, internet and computers.

The critical description of a twenty-first century learner by the students was evidence of the importance of engaging them in the development of a theoretical knowledge for meaningful education and training. The repertoire of theoretical knowledge for pedagogical content knowledge developed through argumentative engagement of students proved to be relevant to the issues of classroom practice, such as classroom management, discipline and mediation processes. The views and experiences of diverse classroom practices were unleashed during discussions and arguments. These activities enabled students who came from different socio-economic background to address stereotypes and ethnocentric knowledge they generated from hearsay.

The argumentation afforded students to gather first-hand information as they questioned one another about the experiences and their communities' world view. Questions such as: how did you manage to learn in a school environment where there is no electricity and Internet or Wi-Fi? Are learners still learning under those circumstances? Notably, these questions were asked by students who grew up in townships and urban areas; for these students, it was difficult to figure out a classroom environment in a remote school in a countryside.

The group of students who came from rural schools confessed that to cope with the technological developments they experience in the urban life style is a challenge to them. They realised that to adjust to the experiences of their urban counterparts, they needed to be pro-active and develop their own techniques and strategies to adapt to the twenty-first century culture. One student said: 'it is really an advantage to be in this environment because besides academic courses I have developed my own courses driven by interest and passion to know my world'. Another honest student reflected on her own circumstances of having attended school in remote countryside in South Africa. This candid student admitted that as a student from such an isolated environment, there is nothing that teachers did to expose her to the broader world of experience through teaching. She felt embarrassed when she identified huge gaps in her knowledge about the national and international world.

Student Royan: I will teach in rural areas after completing my qualification for the purpose of expanding the worldview of my learners." Asked about how he will plan this, the student highlighted that the first thing is to link his teaching to technology such as You Tube videos in order to bring realities such as laboratories, industrial activities, manufacturing industries and in the main technology and processing into remote contexts.

The patterns of thought developed by students were not based much on theories of Pavlov, Skinner and Thorndike per se, but they came up with their own description of the twenty-first century which encapsulated the needs of the contemporary learners. The description highlighted the twenty-first century learners' styles of thinking are driven by knowledge explosion which is made possible by technology. Learners of the technological advancement are facing a demand to adjust to the fast developing world of electronic devices. Therefore, the acquisition of knowledge and skills in high-school learning ought to enable learners to adjust to the environment and the demands of life beyond the school or institution's premises. These factors

were raised by students in their arguments indicated to me that the generation of prospective teachers should be part of the construction of knowledge about what they perceive to be the meaningful practice in the classroom. They are the generation of teachers who are from schools under the current dispensation: they have ideas to share about what they think teachers should have done to cope and comprehend real-life experiences. All the ideas shared by students informed the designing and development of the booklet for work-integrated learning. The outcomes of the study conducted for this chapter endorse the views expressed by Fejes and Nicoll ([2], p. 68) that 'the teachers own professional practice should be the platform of knowledge production designed by teachers themselves'. The preparation of teachers for the current and future dispensation requires a radical but realistic paradigm shift in the fundamental point of departure in conceptualising teachers in the context of curriculum development in South Africa. Societies such as South Africa's that are overwhelmed by issues of joblessness, poverty and social injustices need transformative and reflective teachers.

8. Conclusion

The main conclusions drawn from the findings presented in this chapter are summarised as follows: first, the evidence-based teacher education and training and transformative learning solicited by the study appeared to be a high point in the outcomes of the study. The views and experiences shared in this study contribute to trends of thought in teacher education and training. Second, collaborative engagement of students proved to be an effective approach for competence-based learning; however, guidelines and facilitation of the process of learning are critical in ensuring that students do not lose track of the pre-determined learning outcomes and assessment criteria. Third, the idea of allowing students to select philosophies and theories of knowledge they consider to be of meaningful influence to their conceptualising of professional practice appeared to be an effective mechanism for development of multiple skills and competences. Fourth, alignment of learning outcomes, the task and assessment criteria and continuous feedback to students' performance was possible as engagement in the task continued.

Lastly, the change of disposition and worldviews of students was transformative as witnessed in the competences demonstrated in students' elevated critical thinking, critical reflections and in constructing views about the pedagogical content knowledge for themselves. The application of conceptual knowledge in arguments enabled students to develop their own professional identity that is informed by their own choice of philosophical and theoretical knowledge. The reality of the matter is that prospective teachers are the agents of transformation in the societies; this view of the teacher implies that abilities of prospective teachers' to reflect and construct ideas about what ought be an effective and ideal professional practice to implement societal change and transformation should be nurtured during their initial education and training.

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A Professional Development Program for Beginning High School Teachers

Cristina Maciel de Oliveira

Abstract

This paper presents a professional development program for beginning high school teachers. The program was designed after identifying, characterizing and evaluating the professional training needs of beginning teachers, using quantitative and qualitative methodologies via interviews and surveys. With a framework in personalized education and in constructivist theory—both related to professional development for such teachers—and in adult transformative learning theory, the program promotes personal pedagogy which guides teachers to clarify the meaning of their role in the twenty-first century. The program fosters a model of formative learning that is more related to the knowledge of the beginning teacher regarding the reality of teaching and learning, the pedagogical subject, the school environment and capacity to act on the educational situation, than to specific disciplinary contents. The contents on which the program is structured are oriented to the systematic observation of pedagogical practice, to the knowledge of adolescents and their learning as a reason for it, to teaching in diversity and to the significance of being a teacher of secondary education.

Keywords: secondary school teachers, professional training, teacher education curriculum

1. Introduction

Secondary education initial training for teachers in Uruguay is developed in a 4-year period, and is led by a learning model that is simultaneous to three fields of knowledge, i.e., knowledge regarding the subject to be taught, pedagogical knowledge and educational knowledge [1].

As a teacher of initial teaching training courses in this country, I perceived that teachers who graduated from training courses aimed at teaching at high schools feel and state their professional needs when performing their jobs.

Uruguay education system offers free updates and continuous education, provided in different formats (conferences, courses, sessions, seminars, lectures and workshops.) Such instances are independent from each other and attendance is optional for teachers. There is no specific program for the enhancement of theoretical and practical training for high school teachers in their first 5 years of activity.

This results in a problematic situation currently being researched in the framework of a doctoral thesis on education, led by EdD. Ramón Pérez Juste, UNED, Madrid, Spain [2].

The aim is to contribute in the improvement of initial teacher training for high school teachers, by means of supporting the authorities of the CFE with a professional development program which addresses the professional needs of such teachers. In this sense, there are two specific objectives: 1. To design a pedagogical professional development program, aimed at enhancing beginning teachers who perform tasks at national public secondary education centers. 2. To perform an initial evaluation of the program in terms of appropriateness, adaptation, sufficiency and realism as regards its objectives, quality and viability.

The accomplishment of the first objective presumes prior identification of professional training needs of target teachers. The second objective will be reached via the submission of the program to expert opinions and by means of interviews to recently graduated teachers. Due to extension matters, this section presents a summarized explanation of the objective.

2. A professional development program for beginning high school teachers

The making of the process starts with a collection of background and study of bases; it continues with research on the professional needs of target beginning teachers; it continues with its design and ends with its pre-evaluation, which resulted in the reformulation of the program.

2.1 Background

There are four study areas to the research on beginning teachers. One of the areas is related to the characteristics of such teachers, which shows no previous publications in Latin America before 2006, when the international workshop "Policies for Insertion of Beginning Teachers into the Teaching Profession: the Latin America experience and the Colombian case." The second area is related to accompanying experiences in the United States, Europe (England, North Ireland, Scotland) and Israel and in countries from other continents, such as New Zealand and Japan. The third area relates to difficulties faced by beginning teachers, emerging from research done by Vonk (1983) [20] and Veenman [16]. The fourth area involves research on the socialization of participants. Such research includes influential factors, the different stages identified during the first year of activity, the strategies applied by teachers and potential changes of perspective in their teaching [3].

International research, written in English, on the development of professional teachers states the importance of teachers taking part of professional development instances, due to the positive impact that such instances have on their beliefs and habits, the students' learning and of the implementation of education reforms [4].

With reference to programs that enable professional opportunities and enhance training for beginning teachers, their institutionalization is recent in Latin America, when compared to the policies and support structures featured in European and Asian countries, such as Japan, where a compulsory training program has been active for graduated teachers since 1988.

Until now, induction programs designed and structured to offer additional training and personalized assistance to beginning teachers are compulsory in 17 countries or regions (Germany, Estonia, Ireland, France, Italy, Cyprus, Luxembourg, Malta, Austria, Portugal, Romania, Slovenia, Slovakia, Sweden, the UK, Croatia

and Turkey.) Some of these programs focus on individual assistance and others on training. However, all of them aim at assisting teachers in their adapting to the profession and reducing the possibilities of early dropout [5]. Accompanying projects for beginning teachers started being developed in Spain and Latin America (Argentina, Colombia, Chile and Uruguay) in the first decade of this century.

Regarding issues related to continuous training for active beginning high school teachers, who are the subject matter at an international level, within the 2010–2014 period, the subject matter mainly spotlights the requirements of society towards teaching. This involves: (a) assessment and reformulation of teaching training and practice and quality improvement; (b) training for the development of practices founded on respect for human rights and principles of inclusive education to respect diversity and (c) changes caused by the use of new information and communication technologies when teaching and learning. Furthermore, there is the resulting impact that such training has on teaching beliefs, which are exposed in the performance of the job and in the training of future teachers.

Acknowledging the importance of continuous teacher training is recognized by multiple international authors and organizations. It is characterized as a key process to teaching professionalization [5], in order to think of pedagogical practices and adapt to changes [6] and, as a need [7], it has been analyzed internationally, mainly in America and in the UK [8]. The existing offer and organization of continuous training in the countries which belong to MERCOSUR (Argentina, Brazil, Uruguay and Paraguay) have been analyzed, as well [9].

Continuous training involves understanding the development process of the profession [10]. Within such process, the transition from being a trainee teacher to having a first job usually causes a shock or "reality shower" to some, resulting from becoming aware of the differences between the reality and the ideals created throughout the initial training period [11]. This usually causes helplessness feelings and fear before failure. As to the cognitive aspect, this shock provokes aversion towards the theory that was learned, which seems useless when applied in practice. With reference to behavior, this shock blocks sensitive actions and reactions, therefore preventing teachers from identifying possibilities the situation presents [12]. Some others believe the phrase "reality shower" however eloquent is inappropriate, as it implies that there is an unavoidable short period of commotion to be faced [13].

For some authors, this socialization stage, at which beginning teachers enter a professional group [14], takes place during the first 3 years of the course of their careers. However, some others extend such period to the first 5 years.

This study calls this first stage the *initial acquisition of the teaching role.* It is undoubtedly an initial phase [15], a reality check [16], starting a career and socializing [17], initiating or inducting teaching [18], in which all teachers need to develop survival strategies [19] to enter a gap period between initial and permanent training due to their lack of familiarity with the initial specific teaching situation [20], which serves as an argument for continuous professional development [21].

These statements describe this first stage considering the role such phase plays in the continuum of the professional development process and the difficulties with which it confronts teachers. As a conclusion from critical inferential reading performed in relation to the characterization of this initial stage, the essence of such professional development phase seems to rely on the fact of acquiring the teaching role and the meaning of the profession and applying it in every instance in which teaching performance is required in a practical manner or in the being and feeling as a teacher in a specific context.

This is considered a key period as well, provided that it is that in which teachers build their work culture and therefore acknowledge the importance of its being considered by professional teacher training proposals in Latin America [21].

2.2 Theoretical framework

The aim of the program subject to this paper is the development of professional beginning teachers. The Day conception of professional development is adopted, as it is a "broad view of professional learning," before other conceptions which are led by the acquisition of knowledge on the subject or teaching strategies [11]. This author adds informal learning to formal learning through experience, the former enabling teachers to overcome classroom situations and to improve their professional expertise.

In this sense, the three main theories on which the proposal is based are: the conception of personalized education, a constructivist theory—both regarding teacher professional development—and adult transformative learning theory.

Personalized education transforms the learning procedure into a personal training element, as conceived by García Hoz [22]. This is a type of education which addresses human needs and the present technological society conditions in which we live [23, 24]. Its pertinence is confirmed by the acknowledgment of a present need for personalized learning in pursue of more effective results, and by the current challenge of understanding how to adapt teaching methods in order to universalize learning [25].

This educational conception is understood broadly, thus not linked to any specific philosophical, psychological or pedagogical current, but open to all lines of thinking which may contribute to the perfecting of the person—as a whole—with no reductionism whatsoever [23]. Notwithstanding any political powers or pressure groups, educational personalization accepts sociocultural and scientific progress.

From this point of view, it is understood that teachers may find the reasons for their profession in the nature of their own selves, if that serves as support [26].

Personalized education, when related to aptitudes for evaluation and performance rather than to content learning, enhances training as a means for professional development. Therefore, the program aims at enabling a type of formative learning related more to beginning teachers' understanding of the reality of teaching and learning, the pedagogical subject and school contexts, as well as to theirs ability to act upon an educative situation, rather than to specific disciplinary contents.

In this sense, the educative style presents two main significances: teachers' teaching styles and students' learning styles within a person-forming teaching and learning model.

Teaching and learning are conceived as constitutive parts of a unique process, as teaching makes sense only when it provokes learning. The learning model related to personalized education is conditioned by how human cognitive activity is conceived, mainly when referred to intelligence and knowledge functions in a strict sense and to expression functions.

The development of abilities necessary for the execution of such functions is the reason for the educational labor, therefore showing the aims of learning, which in personalized education are conceived as constituted by three types of components: cognition, aptitude and evaluation.

Constructivist theory conceptualizes professional teaching development defining teachers as active, practical and reflexive apprentices able to build their own theories and practices collectively with other teachers, institutional actors, families and members of the community.

This is a long terms process which takes place in a particular context, i.e., it is centered in an educational institution and refers to daily teacher and student activities. This is not skills training but a culture building process. In this framework, teachers are conceived as practical and reflexive, and professional development aims at helping teachers to build new pedagogic theories and practices.

Learning gains a role through interaction with others in a real problem-solving context which encourages learning through reflection, experience and dialog, thus discovering the significance of happenings in a given context. It is a social rather than individual type of learning, based on specific rather than theoretical situations.

From these two viewpoints, professional development is a collaborative process that is more successful when it involves significant interactions. Regarding configuration, there is no professional development format or model better than others; institutions and educator must evaluate their needs, cultural beliefs and practices to decide which model is more appropriate for their situation [4].

Furthermore, encouraging teachers to teach for idea understanding and elaboration and diversity is essential in order to let students find productive entrance paths to knowledge at the same time they learn how to live together in a constructive manner. Teachers must combine content and student knowledge and understanding with the communities where they work, ensuring that families participate in the process as well [27].

Considering that teachers are adults who not only teach but also learn, and that such learning implies learning how to teach, the learning theory called transformative learning theory, developed by Mezirow in the late 70's, is adopted.

According to this theory, the construction of meaning is fundamental, provided that transformative learning is conceived as that which transforms reference frameworks.

Reference frameworks refers to culture and language structures through which human experiences are construed and therefore given coherence and meaning [28]. Such frameworks are conceptualized as the groups of fixed cases and expectations, i.e., significance perspectives and ways of thinking.

The author understands this theory as a type of cognitive epistemology on evidential and dialogic (instrumental and communicative, respectively) reasoning. Mezirow agrees with Habermas on the three types of learning (technical, practical and emancipatory) and names them: instrumental, dialogic and self-reflexive.

Reasoning is deemed as an advance and belief evaluation process. From this viewpoint, transformative learning is conceptualized as an adult dimension of reason evaluation, which implies validation and reformulation of meaning structures.

Transformative learning theory supposes as a grownup way to transform those reference frameworks that lead actions. Adoption of such learning theory is deemed appropriate, considering that it may promote an evaluation of the conceptions related to the teaching, learning and professional identity of the participant teachers, and an eventual reformulation, if deemed appropriate [28].

This proposal and corresponding formative on-site contextualized action is expected to achieve the following goals: a. to consider needs, demands and worries that teachers state regarding areas of improvement, especially in connection with teaching practices; b. to work on enhancing teaching skills from experience; c. to promote teacher participation and interaction; d. to establish adolescents and their learning as the observation and analysis focus for the creation of pedagogical practices; e. to provide theoretical and practical elements to develop teaching tasks that work towards citizenship education and coexistence, via the exercise of inclusion, attention to diversity and incorporation of the communities to which students belong.

2.3 Research on the professional needs of target beginning teachers

In order to find inquire into the need for beginning teacher training, a study population was conformed with up to 5-year professionally experienced teachers from the 42 public high schools from the East region of the country. High school

inspectors and management teams acted as external observers, and secretaries and beginning teachers as beginning observers.

The subjects of study are: beginning teachers' profile and performance at high-schools where they work; expectations and interests in a professional enhancement program for beginning teachers; aims and contents that a program of the kind should have, and the need for training.

During a research preparation phase, a high-school board is created to collect information and form a database of the beginning teachers working in such institutions. Interviews are held with the inspectors of the East region of Secondary Education to inform them on the study to be performed and learn about their interest in the study, to request their support. The directors of the high-schools of the Region are informed via telephone about the importance that providing the information requested has for the research. Collection instruments are designed and validated by secondary education inspectors.

The techniques applied for gathering information were surveys and interviews. Interviews as a means are selected due to the geographic distances among high-schools. Interviews allow the triangulation of the information collected in the surveys.

High-school (n = 42) teacher-secretaries are surveyed as per request of form-filling with the data about beginning teachers' profiles (age, workload, graduate certificate or lack whereof).

Individual interviews are presented as well to the members of the board (n = 91). They are deemed qualified informants based on their expertise and experience and are enquired on the performance of beginning teachers and expectations for a professional enhancement program aimed at beginning teachers.

Interviews with 19 directors and assistant directors (45% of the total) are held to analyze the performance of beginning teachers and know their perspective on the objectives and contents that a professional enhancing program aimed at beginning teachers should have. The selection criteria used for directors involve: representing over 30% of the total and that some of the directors work at high-schools located in departmental capitals, with over 1000 students, and others work at remote high-schools with under 500 students.

Four hundred and seventeen beginning teachers (57% of the total at reach) were personally interviewed and 21 (25% of the teachers willing to be interviewed) were telephonically interviewed on their professional needs, in order to also know their interest in a professional enhancement program.

Quantitative—by means of SPSS software- and qualitative methodologies—by means of content analysis—were applied.

2.4 The need for beginning teacher training

Both beginning teachers and participants of management teams of the high schools where they perform their teaching jobs, when interviewed, stated the need for professional training and, in most cases, showed their interest in the satisfaction of said needs via a professional enhancement course.

The difference between graduated beginning teachers and non-graduated beginning teachers, when perceived, mainly resides in the strength of their initial training, theoretical or specific to a subject, and in the methodology observed in graduates.

This conclusion is relevant as it defines the option of designing a program aimed at beginning teachers who have graduated from teacher training courses. It is understood that the professional needs of those who have not fulfilled the requirements of initial training courses to perform as teachers should be broader as non-graduate teachers, in general, lack pedagogical, psychological and educational training despite their subject-related expertise.

Although there is institutional support for beginning teachers, such support is not a part of any action plan organized by the National Council for Education but created or not according to the initiatives of management teams in each high school. Such support, if any, does not seem to be efficient enough for beginning teachers, who do not recognize it as a professional support device relevant to a high school culture.

From the management teams' viewpoint, professional knowledge and especially pedagogical and psychological knowledge, the educational bond between teachers and adolescent students, groups and institutions, their colleagues and the context and the attitudes that teachers may have towards their profession must be subject to continuous training and skill development for beginning teachers.

Consistently, beginning teachers state their feeling a need for improvement and continuous professional self-training, in order to know how to deal with students and inappropriate behavior, for encouraging them to learn, contributing in the creation of a culture within the education center from a relational point of view and for strengthening general and specific didactic knowledge related to content teaching, learning orientation and student-performed tasks.

Additionally, both student diversity and inclusion raise professional training needs in beginning teachers, to encourage learning and to consider those students who present learning difficulties, special needs or other problems, such as addictions.

Consequently, it is induced that a professional strengthening program which attempts an approach to the satisfaction of such needs must aim at continuing training related to the performance of teaching roles, in consonance with the requirements of the secondary level of education and in the framework of the professional stage of acquisition of teaching roles. Moreover, studying and understanding adolescents and planning their involvement in the classroom seems to be crucial as training subject matter, as adolescents and their physical, psychological and social conditions are diverse. Enhancing systematic observation is a potential asset for planning tasks in a diverse context.

Little mention to the need for strengthening disciplinary knowledge confirms the interest in the design of a professional teaching development course with general pedagogical characteristics.

2.5 Design of the professional development program

This program is expected to present a pedagogical updating and renewing nature, aimed at improving the teaching profession [29]. This is a course of action structured with pedagogical contents common to all teachers and their areas, and it includes formative assessment [30].

The program is called *SER Profesor* (being a teacher).

Being a teacher and having a personalized educational style involves a way of teaching, working and expressing oneself, featured by: being receptive and conciliatory, which is related to the reception principle; being reflexive and creative, in relation to the personal identity principle; individualizing and encouraging coexistence, considering the manifestations of the identity principle; being optimistic, in accordance with the principles and corresponding manifestations that define a person.

2.5.1 General objectives

The program promotes pedagogy from the teacher as a person, aimed at the student as a person, which combines what teachers ought to do with real responsibilities of a teaching job. The following premises act as bases: (a) the initial acquisition of the teaching role, which beginning teachers experience, makes teachers prone to

making sense of their professional performance or clarifying the sense and significance of their roles; (b) beginning teachers may find a reason to their profession in their nature, if assisted.

Based on such premises, two objectives give meaning to this program: (1) to contribute to the professional development of beginning teachers and (2) to encourage improvement in the teaching quality developed by beginning teachers, within this initial stage.

Therefore, the following general objectives are established: (a) to promote the development of critical thinking and participation in dialectical discourse on teaching tasks, students' learning and the context in which they meet and how they relate; (b) to enhance general pedagogical training and aptitude towards continuous training as a requirement for performing teaching roles; (c) to enable the construction of a professional identity consistent with the characteristics that conform the initial stage of the professional teaching development process; and (d) to teach values and attitudes that consider teachers as professionals who assist students in their reaching the highest level of personal autonomy as a manifestation of personalized comprehensive education.

2.5.2 Course duration and modality

The program is divided in four thematic units and a total class load of four credits (i.e., 60 hours) to be taken in 4 months, obtaining one credit per unit (i.e., 15-hour coursework during class time, assisted tasks and individual studying.) This option is substantiated by the research that argues that teachers need considerable professional development of about 50 hours to improve their skills and enhance student-learning [31].

The modality proposed is blended workshop-courses. B-learning may facilitate the demands of the course, in so far as the number of hours participants need to attend the course decrease, thus encouraging home studying instead. An on-line platform is an essential resource to apply this modality.

2.5.3 Contents

The general criteria used to solve issues related to content selection is the following: (a) selection of meaningful aspects and concepts that enable the acquisition of new knowledge to the participants; (b) possibility of exchanging work during class time; (c) adequation to beginners' condition regarding training and experience; (d) approach to real situations related to teaching jobs; and (e) functionality, regarding the extent to which such contents can be applied effectively to teaching practices.

It is a concentric program, organized consistently with pedagogical practice as interest center and linking core, from four analysis levels. These levels give name to each of the four units. Such units and their corresponding contents are presented in **Table 1**.

2.5.4 Methods

The teaching method applied throughout the course aims at the encouragement of motivation for constructive meaningful learning, based on the interrelation of contents and participants' teaching experience. The following didactic criteria are considered for motivation: presentation of tasks with relevant contents which related to their reality and are valuable as necessary for their training and experience; student involvement in tasks, encouraging participation and providing the chance to choose topics to study in depth; concrete real work, based on experience, so as to promote understanding and raise interest in learning; recovery of main

Unit 1	Unit 2	Unit 3	Unit 4
Being a teacher at secondary education level	Systematic observation for knowledge and analysis of pedagogical practice	Adolescents and their learning as a reason for pedagogical practices	Syllabi aimed at addressing students' socio-personal diversity
Contents	**Contents**	**Contents**	**Contents**
1. The sense of being a teacher: being, acting and feeling like a teacher. 2. Stages of teaching experience and characteristics of professional and personal development. 3. Possibilities and limitations in the initial professional training stage: professional needs emerging from pedagogical practices. 4. Professional knowledge, attitudes and values of teachers at secondary education level.	1. Observation concept and nature Advantages and limitations. 2. Techniques and procedures for recording data. 3. Observation planning. 4. Analysis and data interpretation.	1. Characteristics of adolescents in the present society and context of the education center. 2. General principles of cognitive and psychosocial development in adolescents. 3. Learning encouragement based on theoretical diverse focuses: conductivism, humanism, cognitivism, attribution theory, achievement motivation. 4. Principles for the optimization of learning encouragement	1. Needs for planning. 2. Annual and unit-based planning. Bases. Components. 3. Integration of educational technologies consistent with planning. 4. Syllabi aimed at addressing student socio-personal diversity.

Table 1.
Thematic units and contents.

meaningful codes and languages for participants, arising from their contexts, visual culture, musical expressions, sports, interactive IT culture; inclusion of emotions when teaching, thus helping participants to overcome their insecurity and enabling thought and feeling expression; personalized communication and tracking of individual progress; encouragement of teamwork, as a mediator of experiences and external perspectives to favor personal identity and socialization; use of interesting topics to participants; progress and mistakes assessment and self-assessment and commitment to learning; coherence between teacher's discourse and practices [32].

2.5.5 Assessment

Assessment is one of the most significant activities of the professional development process promoted by the course.

In this framework, assessment is conceptualized as a systematic process of collection of information on the relevant aspects of the educational situation. Assessment allows the formulation of pre-established value judgment to take improvement decisions in the training process of the teachers involved with such evaluation. Considering its social, control and certification dimensions, such value judgment is related to achievements instead of to aims.

Gained knowledge, developed attitudes and developed and acquired procedures quality are subject to evaluation. Components of the program aimed at improving its execution by the leading teacher are subject to evaluation as well.

3. Conclusions

The research performed on beginning teacher professional training needs was essential for the accomplishment of the objective: designing a professional development program aimed at enhancing beginning teacher training for teachers who

work at national public high-schools. Apart from identifying the main common needs of the population that acted as the study subject, this research allows the deduction a first conclusion: the needs recognized for both beginning teachers and the directors of educative centers where the former work relate to general pedagogical update rather than to specific-discipline related analysis. This observation has enabled two important decisions to adopt in order to define the nature of the program. On the one hand, there is the need for a pedagogical program. On the second hand, the update strategy is the most appropriate and viable framework for the design of the program, provided that the target teachers have already received basic training provided by their initial training studies. Moreover, the educative system currently offers specializations based on the analysis of specific, disciplinary areas or institution management.

The state-of-the-art study performed in the field of teacher training reveals the interest that the policies of education ministries from numerous countries express, and the interest of educative research on teacher preparation via training, updating or specialization, as means for continuous professional training. Consequentially, there is a second conclusion: it is necessary to define the objective of the training proposal to be presented. The decision adopted for the purpose of the pedagogical program to be designed to be teacher personal and professional growth acknowledges the value of people working as professional teachers who assume the responsible task of collaborating in the development of other people, i.e., the students. Therefore, their human condition and social responsibility are emphasized in the name of the program: *SER Profesor* (being a teacher) and personalized education fundaments are adopted.

A pedagogical program aimed at teachers in their first professional stage must be coherent with the current challenges the society offers and with the demands of this teaching training. Within such demands social inclusion is emphasized.

The third conclusion is that a pedagogical program of this kind should be structured on the following bases: teachers' needs, demands and concerns regarding areas to improve, mainly in relation to teaching practices, teaching-skill enhancement, teacher participation and interaction; teenagers and their learning as the observation focus, pedagogical practice analysis and construction; practical and theoretical elements to develop teaching tasks addressed to citizenship education and coexistence by means of execution of inclusion, attention to diversity and involvement of the communities to which the students belong.

From a constructivist viewpoint, teachers are conceived as practical, reflexive and active learners who must be helped in their building new pedagogical theories and practices. In this sense, the fourth conclusion is related to the conditions a professional development program should present. Three conditions are highlighted: firstly, professional development conceived as a collaborative, culture-building process which will become more effective depending on significant interactions among teachers, members of the educative institution, students' families and members of the community in general. Secondly, a professional development program must promote relevant teaching knowledge addressing the concerns resulting from teaching practices expressed by teachers. Thirdly, transformative learning may be the appropriate type of learning for a program that encourages the transformation of teachers' reference frameworks through the development of critical thinking skills and participation in dialectical discourse in order to validate better reflective opinions.

The fifth conclusion implies the general objectives of the course. These objectives must be aimed at promoting four critical aspects of a professional development program. Such objectives are: (a) development of critical thinking and participation in dialectical discourse on teaching tasks, student learning, the context where such

learning takes place and student interaction; (b) general pedagogical training and aptitude for continuous training as requirements for practice teaching roles; (c) building a professional identities that match the characteristics which conform the initial stage of the teaching-profession development process; and (d) training in values and positive attitudes for the conception of teachers as professionals who provide assistance to students for them to achieve the highest possible level of personal autonomy as a result of personalized comprehensive education.

Considering the national institutional context related to public teacher training and the comments of the researchers on teacher professional development, the sixth conclusion lays on the convenience of the program presenting the following characteristics: (a) being defined as an induction program; (b) being taken during the first year of career simultaneously with performing teaching tasks; (c) having a four-credit classload equivalent to 60 hours in a class/workshop b-learning modality; (d) certification upon passing the course; and (e) having national reach as far as budget, infrastructure and human resources needs are met.

Once at program-design stage, the program is conceptualized as an action plan constituted by objectives, contents, means and resources and a system conformed via formative assessment, which is also influenced by external components, such as context and technical, practical and ethical requirements, according to the nature of the program.

The seventh conclusion relates to the contents of each component of the program and consists of structuring them on four units articulated as per level of knowledge of pedagogical practice in relation to the following matters: (1) being a teacher at a secondary level, (2) teenagers and their learning as a reason for pedagogical practice, (3) systematic observation in pursue of knowledge and analysis of pedagogical practice, and (4) planning aimed at student socio-personal diversity.

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Chapter 7

Modernization and Development of Arts Education: Spiritual and Worldview Alternative

Olga Oleksiuk

Abstract

In the field of artistic education, the issue of modernization is considered in different contexts. In this chapter, the modernization of artistic education is considered as improvement, advancing, updating, and changes in accordance with the requirements of time and the macro-process of transition from the traditional view of education to innovation and its relationship with spiritual-ideological traditions. The main purpose of the modernization of artistic education is to improve the quality of the system through transformations and enhance its ability to respond adequately to the challenges of the time. The main challenge is globalization. Two philosophical concepts are considered—the concept of anthropological pedagogy and the concept of living knowledge. The basis for the modernization of the content of artistic education is a synergistic approach, which involves the integration of scientific knowledge, in particular, natural sciences and humanities. The task of artistic pedagogy is to establish a holistic view of a person, and it cannot be compensated at the objective level by traditional technologies. Integrity is a measure of spirituality, humanity, and the creative fiction of education. In the content of modern artistic education, special values are acquired by integrated special courses designed to guide future specialists in the specificity of the development of the individual's spiritual potential, on the value basis to formulate conceptual positions aimed at preserving and enhancing spiritual and ideological values.

Keywords: arts education, modernization, development, spiritual and worldview alternative, interdisciplinary

1. Introduction

An important goal of modern education and a priority task of society and state is the formation of a responsible, enterprising, and competent citizen. The change of the educational paradigm requires a significant transformation of the entire pedagogical outlook, which means that pedagogical science is expected to have a fundamental breakthrough in the field of general scientific and philosophical and, in particular, spiritual and philosophical reflection.

Literature review, conceptual framework, hypotheses, etc. The theme of modernization of artistic education is supplied from various sources. These are the philosophical and culturological works of Vernadsky, Tsiolkovsky, Chizhevsky, Soloviov, and others. The ideas of pedagogical anthropology (Golovanova, Lipskaia,

Luzina, and others) are of great importance. The works of Samokhvalova, in which synergetic discourse involves a holistic and multidimensional perception of an unstable and complex world of art, are of considerable interest.

The works of Ovcharuk, Bermus, Schmais, Thagapsoiev, and Oleksiuk played a significant role in the modernization of artistic education, which reveals the redefinition of theoretical approaches to the emergence of a new settled paradigm. The spiritual interpretation of the text is highlighted in the works of Oleksiuk, Tkach, and Lisun.

The ideas of the ontology of art, revealed in the writings of Losev and Medushevsky, emphasize that it is possible to comprehend the ontological essence of music by penetrating the semantic basis of intonational energies. The purpose of the article is to highlight the conceptual approaches of the spiritual and ideological alternative in the context of modernization and development of artistic education.

1.1 Methodology of research

To achieve the goal, scientific methods have been applied. They create a unique methodology of the chosen research, namely, analytical ones, with reference to the research of the scientific fund, inductive-deductive and generalization to reveal the essential characteristics of the analyzed pedagogical phenomenon, and its regularities of functioning and development.

2. General material presentation

Against the background of the domination of spiritual values in higher education, new requirements for the quality of arts education are specified. It is important to take into account the fact that due to the recent changes in the picture of the world, understanding of a person, his or her formation and development, has been changing. Today it can be argued that the realization of the higher self is possible only through the person's cognition of one's own internal nature. The ideas of personality's self-development, their spiritual potential, and ability to creative realization are becoming more and more widespread. The focus of cognition is shifting from social structures to human individuality, to subjectivity. Society is rapidly moving toward anthropocentrism, and this principle managed to enter modern pedagogy only since it reflects profound changes in social reality [1].

Nowadays, the direction of the new educational paradigm is clearly defined, and the subject of the post-non-classical arts pedagogy is determined. Thus, in particular, based on the ideas of Bim-Bad, it can be argued that the new post-non-classical arts pedagogy should be built on the basis of axioms formulated in the priorities of individual's uniqueness and ambivalence. Within the limits of the pedagogical axioms put forward by the author, a person is considered as the unity of their inherited, inborn, and acquired characteristics. Such a system turns pedagogy to the channel of humanistic anthropological pedagogy. Thus, as Bim-Bad claims, post-non-classical pedagogy receives its first ideological conception—the conception of anthropological pedagogy [2].

Another worldview conception of post-non-classical pedagogy suggested by the author is called the conception of living knowledge. This concept, in the author's opinion, is fundamentally inseparable from the conception of anthropological pedagogy. The complementarity of the two worldview conceptions can turn anthropological pedagogy into the channel of a systemic transformation of a man from

the biological person *Homo sapiens* into a person gifted with a systemic worldview adequate to the process of a postindustrial society development.

The main purpose of the modernization of arts education is to increase the quality of the system by means of transformations and to enhance its ability to adequately respond to the challenges of the time. The main challenge is *globalization*.

Global education as a consequence of globalization starts to acquire the qualities of the new social and humanitarian paradigm of upbringing the younger generation. This means that it can influence the important issues of education modernization and training of future specialists for interaction in European and world social media [3].

In the end of the twentieth century, there were two models of global education popular in foreign pedagogy. The essence of the first is in the formation of an impartial view of the world, real awareness of the general condition of the planet, the formation of cross-cultural literacy, knowledge of global dynamics, and an informed choice. The second model dictates the need to move from unconscious adaptation to the world to the position of active and deliberate socialization, conscious prediction, and personal involvement. According to Kukushin [4], global education acts as one of the directions of modern pedagogical theory and practice development, which is based on the need to prepare a person for life in the context of growing global problems.

In this context, the most adequate requirements nowadays are the conceptual foundations of cognition characteristic of the philosophical school of unity (Vernadskyi, Tsiolkovskyi, Chyzhevskyi, Solovyov, et al.). Considering all the multifacetedness of these conceptual ideas, it is the ideas of *the philosophy of unit*y, whose outstanding representatives were Vernadskyi, Tsiolkovskyi, Chyzhevskyi, Solovyov, and a lot of their followers that deserve special attention. The most important conclusion that follows from the consideration of these conceptions is that a man is the essence of the universe, the main value of the universe. The path to high spirituality lies through the merger of a man with the cosmos, through a new cosmic worldview. The leitmotif of the scientists' works was the idea of unity as a methodological basis for the cognition of nature and human society in their interaction. The idea of unity plays a significant role in educating a worldview of a person of the "noosphere type of civilization." Its basic essence is as follows: any human activity must be spiritualized and nobel, carried out in accordance with the universal laws of the Nature and the Cosmos. Of great importance for solving the problem of educating a worldview of a person of a new noosphere civilization type are the works of Vernadskyi [5] on the versatility of the spatiotemporal states of matter, the structure and properties of time, and the nature of the scientific world outlook. In his opinion, the evolutionary process acquires a special geological significance due to the fact that it has created a new geological force—the scientific thought of a social mankind. Under the influence of the scientific thought and human work, the biosphere is transformed into a new state—the noosphere.

We should note that Vernadskyi made a significant contribution to the disclosure of general laws that are the basis for the three main branches of knowledge—on inanimate nature, living organisms, and people. The scientist has repeatedly emphasized that the spiritual power of society is created as a result of people's creative independent work in all branches of cultural life—science, philosophy, religion, and art. Therefore, education and upbringing should be oriented toward the training of culture creators. In his doctrine of the noosphere, Vernadskyi attempted to combine natural scientific and human knowledge by defining a thought as a peculiar form of energy. Consequently, unlike previous thinkers (their doctrines of unity were basically those of natural philosophy), Vernadskyi developed the idea

of "cosmos logos," where a person performs a special cosmic function—creates a noosphere.

Equally important for the upbringing of a new type of worldview consciousness is another idea of the philosophy of unity, which was first elaborated by Soloviov and later developed by Zenkovskyi, Franko, Muravyov, and other scholars. This is the idea of "unity," which in broad worldview terms means, first of all, the mutual attraction of people and is based on spiritual affinity. The first element of the collegiality is the personality. The very collegiality in its highest, cosmic manifestation lies at the heart of the culture of the past, the present, and the coming. The living person, as well as a particular collegial whole, is inextricably linked and mutually entrenched in one another and is mutually enriching. The idea of a collegiality is aimed at overcoming the antagonism between materialistic and idealistic and scientific and religious and, therefore, plays an essential methodological role in elaborating the foundations of post-non-classical pedagogy.

In the beginning of the third millennium, pedagogical science is becoming more and more aware of the fact that the solution of educational problems involves a new philosophical understanding of a person. Modern scholars (Holovanova, Lipska, Luzina, et al.) argue that various philosophical and anthropological trends (in particular, transcendental, phenomenological, and others) express a certain philosophical position on education. It is the anthropological aspects of philosophical knowledge that provide the pedagogical anthropology with a generalized notion of a person that underlies pedagogical anthropology and pedagogical views on the compatibility of pedagogy. Due to the organic unity of anthropological directions, one can reveal the pedagogical relations within which the formation of the human in humans occurs. Thus, Lipska in her conception [6] puts forward the idea of integration of pedagogical paradigms (objective and subjective) on the basis of philosophical and anthropological approaches. According to the author, such a paradigm is designed to unite different aspects of philosophical and pedagogical human studies into a single subject area. It proceeds from the principle of the integrity of a man as a unity of physical and mental, physical and spiritual, and social and individual and the construction of a modern anthropological model of education. Agreeing with this view, we shall note that modern pedagogy is only approaching the study of the laws of human development as integrity, but today it is known that person's spirituality and subjectivity depend on the integration of emotional, intellectual, motivational, cognitive, and other personality spheres.

It is clear that in today's conditions of rejecting the linear conception of progress and relevant to it classical philosophical interpretations, the scientific and pedagogical community is increasingly aware of the need for a new look at both musical art and its educational potential. At the same time, it results in a number of arising problems that require careful research in art studies, sociology, and cultural studies, as well as physics, biology, mathematics, etc. What unites these branches is the fact that they investigate the universal patterns of complex organizations, whose functioning is attempted to be explained by synergetics. Expanding the systemicity and dynamics of the surrounding world and introducing the vision of it as a universal unity, a synergistic approach can become the basis for modernizing the content of arts education through the integration of diverse scientific knowledge and, in particular, natural sciences and humanities.

Person's discovery and use of the organization laws in the nature in their artistic activity contribute to the closer connection of a man with the world and testify to the need for their mutual development (not the confrontation of a man with nature, but equal participation in the disclosure of the inherent potential of the movement toward beauty). Proceeding from the fact that any process of self-organization is capable of realizing only those potential opportunities that the

Nature possesses, it can be argued that the organization of the artistic language is based on those principles of nature self-organization, which predetermine the appearance of objects regarded as beautiful. According to Samokhvalova [7], the principles of symmetry, the rhythmic structure in spatial and temporal structures, certain qualitative correlations, etc., which underlie artistic forms of expression, constitute the essence of the principle of the manifestation of the structure-forming forces of the very universe.

Thus, synergetic discourse implies a holistic and multidimensional perception of an unstable and complex world of art and readiness to diversification of its development, to the emergence of an unpredictable and, at the same time, a programmed new. Synergetics enabled the scientific community to realize the nonlinearity, multifactority, and probability of the world of art, the multivariant pathways of its development. Thanks to the general mechanisms and laws of the processes of socio-natural systems' self-organization, one can illustrate the unity of all existing things and build a unified procedural model of the world, where the life and work of people, culture, and society are subject to common laws of the universe. The widespread introduction of the synergetic conception into the humanities is internally determined by the prototypes of self-organization ideas. Understanding of general trends in the development of complex structured systems and knowledge of limitations associated with their nature enable more realistic prediction of the result.

3. Modernization and development of artistic education in post: classical discourse

We consider post-non-classical arts education as the following: a value that preserves the person's individual view of the world, of art, and of themselves as the creators of artistic values and their creation; self-organized system, which integrates in its basis the self-development of musical art, and a person, which is in the conceptual field of intersubject relations; process of the person's values formation in the media space, which comprehends music values and creates new ones during creative activity; and the result of the value-based interaction of participants in the educational process, where education is a synergistic unity of time modes: past, present, and future.

Supporters of defining the specifics of the modern stage of science development with the help of the concept of "post-non-classical science," point to its key difference from the classical and non-classical science. This difference lies in the fact that knowledge no longer focuses on the reflection of reality. Post-non-classical science is aimed at creating knowledge, whose reception and application must necessarily include the answer to the question: what are the values of human existence? What are the prospects of human existence in the light of new technologies' application?

The new paradigm of education, the principal position of which is the hermeneutic interpretation of experience, involves the spiritual interpretation of the text, revealing its sense and meaning in the universe of culture. The intuitive processes involved in individual's subconscious provide them with the opportunity to comprehensively cover the whole text scope and comprehend its universal sense. In the end, it is the role of the value and sense intuition in the formation of the hermeneutic experience of the future teacher of musical art that is actualized [8, 9]. Thus, at the turning points in the life of society, there arises an objective need for new knowledge and new methodology. And the beginning of the twenty-first century is characterized by the beginning of the stage of rationalization, which is to end up with the definition of new values of arts education.

Non-classical understanding of arts education is that besides the process, the result, and the system, it is considered through the prism of the subject's active participation. This conditions the subjective nature of education—a phenomenon that possesses such traits as universality, generality, supersituativity, and supersociality.

Based on the law of psychology, the integration of theoretical knowledge is formed in the process of acquisition of invariant structures of the content, which made it possible to scientifically substantiate the system of spiritual values, which include the axiological triad: truth, in the cognitive; good, in the value orientational; and beauty, in esthetic activities. Value-based component of the subjectivity of the education content is enclosed in its sociocultural functions and the process of its assimilation, the result of which is general and functional literacy, professional self-identification, self-cognition, and adherence to culture, that is, socialization.

The twenty-first century has increased the demands for higher education and exacerbated the contradictions connected with the globalization of all aspects of the economic and sociocultural life of society. As a result of the deployment of these processes, the understanding of the person, their formation, and development change. It is possible to claim now that the realization of the highest self is possible only through the cognition of their internal nature.

Modern educational paradigm is aimed at intensifying the practical orientation and instrumental direction, at raising a skilled and mobile person who has not only a set of knowledge but also knows the methods and technologies for obtaining it in a fast-moving information flow [10]. The system of modern education is still aimed at memorizing as much recipe-like information as possible, but not at the conscious memorizing of significant connections and relations in the field under study. The result of this approach is a failure of systemic vision and thinking, which can give rise to unpredictable effects connected with uncontrolled accumulation of modern electronic means. This contributes to the emergence of a new paradigm of education, the necessity of which is conditioned, from our point of view, by the problem of overcoming the absolutism of the competency-based approach and the transition to interdisciplinary positions that ensure the holistic development of a person capable of realizing their spiritual and creative potential. The situation of paradigm changes in education is characterized by many scholars as transitive [11–14]. Transitive means transient, that is, the transition from one state to another. This determines the need to develop scientifically justified strategies and tactics of training a future specialist for entering the educational space, where transitive processes take place at the practical level and where student's further professional formation is to continue [15]. Herewith, it should be noted that the transition is characterized by the absence of clear boundaries. In this context, there is a need for a radical renewal of the constituent elements of education, rethinking of theoretical approaches, finding new organizational forms, methods, technologies, and teaching aids, and introducing innovations into broad practice. This process inevitably leads to the emergence of a new educational paradigm, based on the ideas and principles of fractal pedagogy: nonlinearity, openness, congruency, other dominancy, holism, etc. [16].

Of great importance in the context of socioeconomic changes become human dimensions in education, directed at anthropocentrism. Thus, one can make a number of assumptions that each person is a unique multidimensional, multilevel, hierarchical, multi-deterministic structure that integrates actual-real and potentially possible; every person has a tendency to dynamics and development; people are characterized by a desire for self-organization, ordering from chaos; and the person's desire to be expressed in creativity and communication is natural.

Modern science has made the center of research a comprehensive interdisciplinary approach that integrates various branches of scientific knowledge (not

only social and humanitarian but also natural) around the problem of the holistic cognition of a man. The spiritual component, laid in the basis of arts education, will become the cornerstone that will raise education on the basis of integrity and interdisciplinarity, aimed at developing the spiritual potential of the individual. It is this peculiarity of post-non-classical arts education that makes it possible to hope that future professionals will be the bearers of creative initiative and civic activism.

It should be noted that discipline-based education contradicts its innovation, since new knowledge arises exclusively in the space of its general connections and relationships, in those interdisciplinary nodes where many scientific disciplines intersect. On the other hand, interdisciplinarity contradicts the paradigm of education, which was connected with the training of a professional of a special qualification and corresponded to a clear vertical structure of science, built on the basis of clearly separated, specialized, disciplinary forms of activity. An adequate contemporary science form of fundamental education becomes an interdisciplinary character. Interdisciplinarity characterizes the contemporary form of fundamentalism of both science and education. The interdisciplinary nature of education makes it necessary to rethink the content of educational activity. At the same time, it is necessary to take into account the requirements of the labor market, where the demand for specialists possessing not basic, but practical knowledge, is growing. The task of the teacher in these conditions is to form student's interactive thinking. It is this that provides modern education with the adequacy of training a professional to the requirements and challenges of modern science and modern professional growth.

Interdisciplinarity as a modern form of fundamental education is the main direction of the university modernization, and the development of fundamental interdisciplinary approaches in university education comes to the fore. The question of the inconsistency of the university space, divided into faculties and the department, which contradicts new realities and requirements for education, is becoming really urgent. As a result, it is necessary to form new professional orientations in education. Thus, the model of the specialist should have such characteristics as adaptability, flexibility, readiness for change, etc.

The introduction of spatial concepts in the study of the spiritual potential of personality caused the need to revise the linear ideas of the educational process as a causal determined process where specialist's personality develops. The basis for this is the post-non-classical type of rationality, which makes it possible to understand the person in education as the center, the purpose, and the value of cognition. The semantic field of the post-non-classical arts education is quite broad and multilevel, related to the scale of certain phenomena in social practice and media space. Such multifaceted nature involves creating the image of the desired future, formulating the goals and means for their achievement in research projects, and scientific and pedagogical schools taking into consideration the new educational paradigm.

The historical nature of the spiritual potential of arts education is based on the principles of the formation of structural changes in the classical paradigm, which, in today's conditions, undergoes a cardinal transformation. Instead of classical, post–non-classical education paradigm comes to the fore, but the final transition from one state to another has not yet happened. It should be emphasized that the classical educational paradigm forms the educational process in the traditional direction. And if such a paradigm met the needs of the twentieth century society, where the main goal was to transfer practical knowledge to the student, in the conditions of social needs of modern society, after the information revolution, the classical paradigm is already not sufficient. The post-non-classical educational paradigm forms the educational process through research, individualization, and variability. At the same time, sociocultural norms level out their canonical essence;

moreover, the modern students themselves must reproduce a new sociocultural reality, which will provide them with the spiritual development of creative self-esteem in the context of world educational standards of the twenty-first century.

In a situation where the spiritual and ideological role of science becomes more and more important, the educational process at university involves not only the formation of knowledge but also the transfer of the "spirit of science," "traditions of science," and "semantics of science." First of all, these concepts include spiritual values and moral norms that are characteristics of science in general and of certain branches in particular. And although a student can acquire knowledge from educational and methodological literature, the bearer of traditions is always a teacher. It is worth noting that science is not the only way of cognizing the world. Over many years, the scientific form of cognition dominated in native education, the absolutization of which superseded other scientific ideas and related branches. This negatively influenced the quality of education at the level of development of spiritual and worldview awareness and self-awareness of the young generation of specialists. Since this was a logical process of the humanitarian science and education of the twentieth century, it also influenced the development of arts education.

Integrity of knowledge involves the combination of natural science with the dominant scientific method in the field of humanities, art, religion, etc. Nature and society are a holistic phenomenon, so the student must get objective knowledge about nature, society, and the role of a man (personality) in this process. The limits of our intervention in life processes are not determined only by the scientific and technical capabilities but also by ideas about the phenomenon and the essence of a man. This explains the need to consider the problem of integrating the spiritual potential of humanitarian education and natural science. Successful realization of the integration of humanitarian education and science spiritual potential is possible under the conditions of formation of the modern scientific picture of the world in students based on basic knowledge and universal educational actions of these branches.

Natural scientific literacy can be considered not only as the result of subject learning but primarily as a means of realizing the spiritual potential of natural sciences, which define the fundamentals of the nation's basic culture. The problem is insufficient realization of the spiritual potential of natural sciences as the basis for value orientations of needs, motives, interests, ideals, and beliefs. Formation of the worldview orientation of education in accordance with the vector of state policy will be achieved on the basis of the successful realization of the spiritual potential of natural science education. Mechanisms for realizing the spiritual potential of natural sciences should be considered in the context of the goals and objectives of the Law "On Higher Education" (2014). It is this law that provides the formation of socially active people, who respect their people, culture, and spiritual traditions.

Real ways of realizing the spiritual potential of natural science in humanitarian education lie in improving the content of education and the creation and modernization of new teaching methods and diagnostic materials. This is especially true of arts education at the present stage of its development, where one of the main trends is integration of modernization processes.

The key issue, and hence the main issue of the theory and practice of arts education, is the relations of universal values and human life's reality. The context of mastering the value space of arts education potentially involves the search for integrated knowledge based on the use of post-non-classical type of scientific rationality. In this respect, the possibility of the existence of non-humanitarian knowledge, based on the laws of classical natural science, is increasingly questioned.

It is well known that the cult of theoretical natural sciences of the twentieth century created the prerequisites for the growth of the rationalization of society and nihilistic sentiment, since at the same time the value-based approach was

completely excluded. Along with this, another possibility arose: the construction of scientific knowledge by incorporating a value-based approach with its simultaneous, more profound rational reflection. The significance of the value-based relationship accentuated by this direction must be taken into account in light of the tragic experience of nihilist rejection of eternal spiritual values. From our point of view, it is here where one of the options for solving the problem of *integrating the spiritual potential of humanitarian education and science* should be found. Denial of spiritual values means denial of humanity in general; therefore, the abovementioned integration should define its perception of values.

For the content of arts education, especially important is historical and cultural knowledge—historical data on the specifics of the scientific, artistic, and mythological ways of cognizing the world as phenomena of culture and, on the works of world art, outstanding historical figures—symbols of the era. Modernization of the content of arts education should include the methodological components of synergetic knowledge, as well as combine different ways of comprehending the world, dialog of science and art. The need to turn to natural science knowledge is conditioned by the fact that a man in art multiplies the beauty of life, gaining space in chaos.

The discovery and use of the laws of nature organization promote closer connection of a man with the world, which indicates the need for their parallel development (not the confrontation of a man with the nature, but equal participation in growth and expansion of the potential of beauty). Proceeding from the fact that any process of self-organization is capable of realizing only the potential possessed by the nature, it can be assumed that the basis of the artistic language organization is the principles of natural self-organization. Samokhvalova argues that the principles of the rhythmic construction in the spatial and temporal structures that underlie the artistic forms of expression are the essence of the principle of self-organization of the universe. For example, the principle of the "golden intersection" is not only the structural law of constructing forms in art (music, poetry, painting, etc.) but also the key law in nature, which characterizes all the geometric and astrophysical ratios of quantities in the solar system [17]. According to Losiev, the subject of musical art is the high-quality embodiment of the ideal digit in time. In his view, this is how music is created as an art of time, in the depths of which the perfectly immovable figurality of digits, which has external qualities of the materialized movement, is hidden. From the conception of music as a manifestation of the life of digits, its main categories emerge: rhythm, symmetry, musical meter, beat, musical tone, melody, harmony, tonality, timbre, dynamics, and sonar qualities of sound combinations. Modern understanding of the ontology of art concerns the consideration of human being in its cosmic dimension. The idea of the art ontology reveals the forms and multidimensional manifestations of a man in the world. Medushevskyi emphasizes that it is possible to comprehend the ontological essence of music by penetrating into the sense basis of intonational energies. Herewith, the author reveals negative tendencies that violate the purity of the spiritual forces of a man. The initial, living ontological sense of force, as Medushevskyi believes, is absorbed by combinatorics of ideas, logical skills, and knowledge. The author turns to the most elevated notion of humanity—the concept of eternity, the life of the spirit in the truth. It is here, in eternity, that the energy and sense of music converge [18].

4. Content of contemporary artistic education in the context of modernization processes

The modernization of arts education implies in its content integrative knowledge, which combines general scientific, specific scientific, and general cultural

disciplines of the humanities. Analyzed scientific approaches to the integration of the spiritual potential of humanitarian and natural sciences can become a conceptual basis for the development and implementation of theoretical, methodological, and diagnostic materials. The essence of the modernization of the content of arts education is to provide it with a purposeful, substantive, and procedural integrity. This involves the restructuring of teaching material; changes in interpretation, composition, commenting, and illustration; and its completion with value and sense elements. The culture study orientation of arts education is realized on the basis of the unity of functional and content components of the educational process. At the same time, this orientation implies integration of the spiritual potential of humanitarian and natural education in the context of the post-non-classical paradigm.

The globalization of modern society has greatly influenced the transformation of the essential foundations and structure of humanitarian knowledge and conceptual and functional relationships of the humanities—philosophy, sociology, history, psychology, pedagogy, law, etc. The consequences of globalization require an in-depth methodological analysis of the peculiarities of the formation of individual's spiritual potential in the field of education and socialization of the younger generation.

The tendencies of the modernization of arts education, which must reflect the social demand for value orientations, content, types, and ways of the activity of teachers and students—future specialists in the field of art—have been already quite clearly outlined.

Valuable orientations should be stable. They are the mastery of a common culture, inclusion to higher spiritual values, the development of spiritual potential, the value consciousness of a professional, etc. One of the obligatory conditions that determine the conceptual basis of arts education modernization is the creation of an innovative methodological basis for each subject of educational activity, taking into account progressive experience within the European space and individual regions of the country. All of this requires, first and foremost, a new humanitarian integrity of knowledge, which acquires an anthropological dimension due to the simultaneous coordination of related disciplines. In this context, the task of arts pedagogy is to establish a holistic view of a person, and this cannot be compensated at the objective level at the expense of traditional technologies. Integrity is a measure of spirituality, humanity, and the creative essence of education.

In the context of the abovementioned statements, the pedagogical principles of the integrated approach to the content of arts education are of particular interest. Thus, theoretical level of integration of students' knowledge is directed at understanding the essence of the concepts of artistic content and form, genre and style, artistic metaphor, symbol, and allegory. This requires the comparison of various art phenomena according to the principle of analogy and contrast, a comparative analysis of the means of artistic comprehension of the surrounding reality, finding the parallels between works close in subject, plot, styles, genre, and structural composition, etc. It should be emphasized that the theoretical level of knowledge integration should be complemented by the empirical level of integration of personality-sensitive impressions of artistic perception, which is based on the activation of psychological mechanisms of synesthesia.

The conception of Bondarevska considers the principle of interdisciplinary approach in modern university education. The author believes that this principle is realized in the content of psychological and pedagogical, scientific and methodical, subject, technological, educational, and other aspects of teacher's professional training [19–21]. "Interdisciplinarity," the author notes, "whose main purpose is to ensure the interaction of sciences and educational modules in the formation of teacher's integral personality, is a real manifestation of the system-forming role of

pedagogical education in the professional training of students of all specialties. In this regard, it is obvious that the factors contributing to the implementation of the interdisciplinary approach are, on the one hand, the introduction of the pedagogical component in the content of all areas of education, and on the other, enrichment of the content of the very pedagogical education by the necessary components of each of other directions of the university education" [21]. The conception of Bondarevska characterizes integrity as the orientation of the educational process on student's personality, their features, interests and needs, value, and sense-based, personal, and professional development. It is also important that the author attributes support to subjectivity and individuality, career links, life plans, and self-development programs to student centeredness [22]. Thus, individuals' integrity is irrevocably linked with the realization of self-worth of all their existence.

The foregoing acquires special value in the content of contemporary arts education in the form of integrated special courses. Thus, say, the author's integrated special course "Pedagogy of individual's spiritual potential" is intended to orient future specialists in the specifics of the development of individual's spiritual potential, to formulate on the value basis conceptual positions aimed at preserving and enhancing national values.

The disclosure of the *content* of the course and its study involves three methodological levels. The first level—philosophical—enables getting acquainted with the world philosophical heritage, penetrating into the ideas of humanistic pedagogy. The second level—general scientific—helps to study the systematic sociocultural existence of personality, to form new ideas about the inclusion of personality in sociocultural space. The third level—specific scientific—makes it possible to understand the laws and humanistic principles of constructing and analyzing pedagogical phenomena.

The study of theoretical material is accompanied by a system of seminars and practical classes, which not only provide the traditional connection of theory and practice but also open the possibilities to develop future specialists' pedagogical self-consciousness and form their psychological readiness for self-realization in socio-pedagogical activity. In the process of seminars and practical classes, students solve creative tasks and prepare self-guided written assignments. Some seminars and practical classes are held in the form of simulation and role games, didactic discussions, "brainstorming," and various types of trainings.

The aim of the integrated special course is to form on the basis of knowledge integration in humanitarian disciplines the spiritual and ideological values of future artistic profile specialists. The task of the integrated special course is the acquisition of knowledge about the methodological foundations of the development of individual's spiritual potential; the study of the essence, structure, and specifics of the formation of individual's spiritual potential; awareness of the role of the system approach to the formation of individual's spiritual potential; and stimulation of the need for professional self-education and creative self-realization.

As a result of the study of the integrated special course, the master student must gain knowledge about the nature and structural components of individual's spiritual potential, directions of the development of individual's spiritual potential pedagogy, the system of formation of individual's spiritual potential, and a strategy for the development of technologies for students' spiritual and moral upbringing.

The master student must be able to distinguish the specifics of the worldview and world comprehension of each cultural and historical epoch; identify the main stages of the development of spiritual culture; determine the main directions of world philosophical and cultural thought; use modern scientific terminology; work with texts (primary sources), write summaries and abstracts, and prepare abstracts;

classify, interpret, and systematize received information; reason to defend their own views on certain problem and tolerate the opposite views; apply the knowledge gained when solving professional problems and in personal life; enrich their spiritual potential by means of self-education; and transfer the processed information in the form of external processes, that is, practical implementation.

As a result of the study of an integrated special course, the master student forms the ability to interact with society, team, and individual; to control, analyze, and correlate the process and result of educational activity; to organize independent activity, etc.; to use new learning technologies; to perform the functions of a teacher of higher education; to supervise students' cognitive activity; to provide high-quality education; to organize students' research activities; to ensure their effectiveness; to develop technologies of pedagogical research; and to implement the obtained results in the educational process.

In this integrated special course, the interdisciplinary block of knowledge is clearly outlined by the philosophical, general scientific, and specifically scientific aspects. The main thing is to relate their cognitive discourse with corresponding determinants of the tasks set.

The current state of the world community is accompanied by the spontaneous emergence of contradictions and conflicts, a poorly expressed confidence in the stability of relations. In such conditions, the negative trends in the youth environment inevitably manifest themselves. In order to modernize the global society through a positive strategy of civilized communities' functioning, it is necessary to reach mutual understanding in assessing the principle of interdisciplinarity as a decisive and significant factor in the system of inter-subjective relations. The integrated construct of interdisciplinary has a spiritual potential, which helps to realize the reflection of the optimal variants for designing, choosing, and harmonizing mutual understanding. All this opens up a considerable resource in overcoming negative tendencies, reaching consensus in the context of modern social medium [23].

Undoubtedly, all this concerns the pedagogical process in higher educational institutions. Considering the problem of professional training of a modern teacher and musician, most scholars state that the boundaries existing in the pedagogy of arts education become a barrier for the formation of a person who seeks comprehension of the artistic space as an integral system.

From the standpoint of the non-classical humanitarian understanding, learning manifests itself in the interconnection of its content-activity and value-sense-based sides as part of the educational process. Thus, according to non-classical ideas of learning, there is not only a purposeful but also a value-oriented process of mastering the knowledge, the ways of activity, and the experience of creativity for individual's personal, professional, and cultural self-identification.

Important in this context is the statement about the necessity of understanding the key goal of the educational process. In modern conditions, this goal can be defined as the formation of a social subject of a holistic, autonomous activity and a rationally organized personality. Attempts to explain competency as a personality trait and identify the graduate's personality with the amount of "gained" competencies are conditioned by the same educational model—ideas about the comprehensive development of the individual. The content of this concept is that the subject is in the constant process of formation, subjection.

5. Conclusions

The system of artistic education and the changes taking place in it under the influence of globalization processes are studied in a spiritual and philosophical

alternative. This alternative does not merely serve as a semantic context, but as a real-life cloth, in which the educational process takes place, as a necessary measure of life's realities. Modernization in education turns out to be productive only if it is projected and implemented in the spiritual-ideological context. Globalization factors are of crucial importance. They are not merely components of the educational system, but determine the essence of education, expressed in its purpose and content, philosophy, and technology. The combination of the abovementioned guidelines is one of the key characteristics and strategic guidelines for the development of artistic education in Ukraine.

In full agreement with the authors of the abovementioned conceptions of integrative knowledge in arts education, we shall note that the problems of contemporary reality require the development of new scientific approaches aimed at identifying the main areas of scientific and pedagogical activity, taking into account the depth of radical changes that fundamentally change the human community. Emerged oppositional pairs of the problems of world space globalization—preservation of national cultures, acceleration of the pace of scientific and technological progress, and the value status of science and art, etc.—create a substantive field for integrative knowledge. A new, higher level of knowledge integration connected with the laws of the self-organization of the universe comes to the fore.

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Significance of Aristotle's Teaching Practice for Modern Education

Oleg A. Donskikh

Abstract

The teaching experience of former systems of education is now enticing the attention not only of some specialists but also from practicing teachers of different levels, and their findings can be used by educators involved in the practical work at schools and universities. In this chapter, the significance of the Aristotle's approach to education is discussed. Four aspects of his approach are specifically investigated: (1) the integrity of knowledge, (2) wonder as the beginning of knowledge, (3) oral communication as a specific way of creating knowledge, and (4) knowledge as a necessary element of way of life. While nowadays, the individuality is the primary value, and the accessibility of information is becoming almost absolute, these points of the Aristotle's way of teaching are becoming crucial.

Keywords: Aristotle, integrity of knowledge, wonder, oral communication, knowledge as value, "theoretical way of life"

1. Introduction

Nowadays, the importance of ancient systems of education is attracting more attention. It is especially true in relation to the Greek's teaching experience, including the one of the Sophists, Stoics, and students of Plato's *Academy* and Aristotle's *Lykeion*. This interest is arousing from professional philosophers (see: [10, 14, 20]) as well as from the practicing teachers (see: [7, 15, 19]). The main idea of this chapter is to argue that nowadays the importance of the Aristotelian approach to teaching is becoming not only interesting but also quite useful. At the same time, some authors indicate that modern universities are becoming much closer to corporations rather than to the classical universities, and in this case previous experience cannot be really useful ([9], pp. 24-25). I think that it is not quite right, and the basic ideas of great teachers should serve as landmarks notwithstanding the modern trends in education and conditions of life.

The main idea of this chapter is to argue that nowadays the importance of the Aristotelian approach to teaching is becoming not only interesting but also quite useful.

The problems of modern education are largely related to the new conditions in which a person of the information society finds himself.

This is, firstly, the victory of the pedagogical concept, which places the interests of the individual above the interests of society and, accordingly, approves the need to choose individual trajectories of education. Yet, the person has to become a member of society and, therefore, to be an obedient taxpayer sharing norms and persuasions of a particular social milieu. These two goals of education are not

easily compatible; moreover, they are quite contradictory. This contradiction can be found in the saying by Alain Touraine, taken as the epigraph for the book [21]: "Democracy serves neither society nor individuals. Democracy serves human beings insofar as they are subjects, or in other words, their own creators and the creators of their individual and collective lives." The problem here is that collective life is guaranteed by the state, and only law (also executed by the state) guarantees the possibility of individual life. At the same time, the law is implemented by the power of the state. This means that the state has to shape future citizens to be obedient, passive, and dependent. It is exactly what Chomsky says in his interview: "If kids are studying for a test, they're not going to learn anything. We all know that from our own experience. You study for a test and pass it and you forget what the topic was, you know. And I presume that this is all pretty conscious. How conscious are they? I don't know, but they're reflections of the attitude that you have to have discipline, passivity, obedience, the kind of independence and creativity that we were shown in the '60s and since then – it's just dangerous" [8].

Secondly, teaching now occurs in conditions where information is always fully available. This means that information does not become real knowledge. It seems that bits of information appear out of nowhere. Accordingly, the very value of knowledge is undermined, because it appears to be so easily gained. This forms a second contradiction: we are living in an informational society, but information is losing its value.

2. Main part

Accordingly, the goals of education are dramatically changing. It is openly or implicitly proclaimed that the purpose of the system of education is, first, to educate a member of a well-organized society, whose purpose is to find the best suitable place in order to receive the maximum from outer conditions. In other words the system of education is aimed to coin qualified consumers, who will be able to navigate themselves through complicated conditions of modern society, or/and, secondly, education is aimed at training a narrow specialist who will be able to find the most appropriate and profitable job necessary for national economy. The system is built in such a way that a person eventually thinks that he chooses the purpose of his training and that he is the master, yet in reality he is driven by the system.

Yet here, the insurmountable and unproductive contradiction is formed between standardization (which is required for the training of a narrow specialist) and the implementation of the individual trajectory of education, which in name is designed to develop the inner abilities of the pupils. This contradiction is easy to demonstrate, for instance, by the so-called manifesto on the digital educational environment, which proclaims that "the purpose of education is not the assimilation of knowledge, but the development of personality" and that "...individualization is the highest good and point of reference" [17].[1] The basic statements are as follows: "Nowadays training is predominantly the obtaining of information from outside – given by a program, a teacher, or a standard. In the digital environment the unit of learning becomes the activity of the student" [17]. And further, "...the usual concept of 'a textbook' retains its meaning only as a selection of educational content of different types. It should be replaced by a digital educational environment, where everyone can choose their own educational path, consisting of activities that they need here and now. The environment, in turn, should continuously analyze the needs and abilities of the student and offer scenarios for further development" [17]. The authors do not even notice how

[1] This program is taken just as a demonstration of particular modern tendency in education.

ridiculous and contradictory this picture looks. On the one hand, it speaks about the formation of an individual educational trajectory, which should be based on the abilities and interests of the student. But, on the other hand, an environment acts as an *active builder* of this exclusively autonomous personality due to its responsibility to set the parameters of this individual trajectory. What about the will of the personality whose path is arranged from outside? In addition, we are talking about the activities relevant at the moment, but it is unclear how this will determine future activity and how the abilities of the growing and emerging individual will be taken into account. What about the establishment of a system that would take into account the change of this very environment as well? There is an extremely thin difference between (1) the situation when artificial intelligence systems are designed to tutor students for particular tasks, yet the very task is presented in the course of traditional education (see, e.g., [6]), and (2) the situation when these systems start to play an active role replacing a student's own sphere of initiative.

The goal of the creators of the so-called OLnet is similar, in that they state that "There has also been a noticeable move towards a strategic recognition of the mission critical importance of technologies as part of wider institutional structures. These changes are evidence that technologies have had an increasing impact on education processes over the last couple of decades, however the impact on actual practice – on teaching and learning – is perhaps not as radical as might have been expected. Considered in terms of methods of teaching, models of work and the relations between teacher and learner, the impact of technologies has not been as transformative in education as it has been in other industries such as finance, tourism or online shopping" ([11], p. 124). The very determination to transform the teaching process on the basis of new technologies excluding personal interaction in favor of impersonal procedure is quite indicative. The problem is that we cannot predict the outcome of the implementation of such innovations.

Further colors to this picture are added by the purely economic approach to education. This is perfectly demonstrated by the intermediate results of educational reforms which have been going in the Russian Federation for about a quarter of a century taking the averaged Western system of education as a model. The process of education is turned into a "service": pupils are becoming clients who are always right, and teachers are the sellers of educational products. This situation is drastically different in its goals and approaches from the situation before.

In the end, we can observe the following outcome. The person who has been educated for 11 years (I am taking the average first year student of university although there definitely are some capable students):

- cannot write summary of what he has heard during a lecture, because he (1) cannot discriminate between principle and secondary statement and (2) he cannot formulate the main idea of what he has just heard;

- demonstrates an absence of elementary knowledge of mathematics, physics, history, literature, etc;

- is able to recall bits of texts (without understanding them) at the level of short-time memory, yet long-time memory is not used;

- does not try to form an integral picture systematizing fragments of received knowledge. Instead of this holistic presentation of some subject or aspect of reality, he creates a senseless mosaic, which is only casually related to the discussed subject. This means that the very possibility to ask any questions about this subject is not imaginable, because the questioning presupposes clarification and refinement of the integrate picture. The very intention to clarify

disappears, replaced by simple procedure: any fragment of received knowledge is easily followed by the next one, and the link is not necessary;

- loses the idea of the value of knowledge;

- does not try to answer the questions which he formulated himself but is trained to seek information which is effortlessly available in one step using different databases;

- cannot critically evaluate straightforwardly received information;

- loses the feeling of incomprehension, which is unavoidable for the possibility to wonder, and, therefore, if information is not an answer to a question that a person consciously asked themselves, that person will not attempt to keep that information in long-term memory.

In this situation, it is interesting to look at the goals set by the education system in the era of Aristotle, given the phenomenon that is called the "Greek miracle" and which with extreme efficiency showed itself in a variety of areas of human activity, including the intellectual. Aristotle is also taken in this respect due to his activity as a teacher and founder of the school which greatly influenced the development of learning in Alexandria, the paramount center of science of the Hellenistic era.

Werner Yeager in his famous book *Paideia* stated that the Greeks thought that the main purpose of education was the creation of man. "They were the first to recognize that education means deliberately moulding human character in accordance with an ideal. ... Throughout history, whenever this conception reappears, it is always inherited from the Greeks; and it always reappears when man abandons the idea of training the young like animals to perform certain definite external duties, and recollects the true essence of education" ([22], pp. xxii-xxiii). This idea of the creation of man (in Russian the word for "education" is "образование" which exactly means "creation" and "building") is developed by the Greeks in close relation with the idea of a necessary political aspect. "The man revealed in the work of the great Greeks is a political man. Greek education is not the sum of a number of private arts and skills intended to create a perfect independent personality. No one believed that it was, until the decline of Hellenism, when the Greek state as such had vanished – the age from which modern pedagogy is directly derived" ([22], pp. xxv-xxvi). Yeager emphasizes that in this case the education was intended to create a responsible citizen rather than an independent personality or narrow specialist.

Aristotle in his understanding of education followed Socrates and especially his teacher Plato and, accordingly, opposed philosophy to dialectics and sophistry. Socrates began to struggle with the sophists, as they realized a purely intellectual ideal, allowing their students to achieve their goals in the political arena without trying to be virtuous. Socrates, followed by Plato and Aristotle, effectively challenged this ideal. Immortal accomplishment of the sophists was the invention of intellectual culture and corresponding ways of educational techniques. "At the same time it is clear that whenever their political training attacked the deeper problems of morality and the state, it was in danger of teaching half-truths—unless it could be grounded in genuine and thorough political thought, searching for the truth for its own sake. From this point of view, Plato and Aristotle later attacked the whole system of sophistic culture and shook it to its foundations" ([22], p. 293). The starting point of the Socratic approach to education was the civilization of the individual in order to make him a socially valuable person. Xenophon spoke on this, introducing the idea of his teacher that if you take "the human beings with the best natures, who are most robust in their souls and most able to accomplish whatever they attempt, if they are educated and learn what they should do, become best and

most beneficial (for the good things they accomplish are very many and very great), while without education and learning they become worst and most harmful, for - not understanding how to decide what they should do - they frequently attempt wicked actions, and since they are grand and impetuous they are hard to restrain and hard to turn back, which is why the bad things they do are very many and very great" ([22], p. 112). In other words, we are talking about curbing wildlife, which characterizes an uneducated person. Thus, the purpose of education is undoubtedly proclaimed as the creation of a political person (a man of a *polis*), a citizen.

Plato follows Socrates directly; Aristotle follows Plato. If Socrates sets a pattern straightly by his personal example, Plato already implements this approach in the Academy, and his approach is intentionally opposed to the rhetorical schools of his time. Plato combines intelligence with the desire to implement a certain civil ideal. As John Dillon notes: "That is the true legacy of the Platonist model of education, on which modern civilization is progressively turning its back: that the properly struc-tured study of quite abstract subjects is the best training for the mind, even when the mind is turned to the solution of entirely practical problems" ([12], p. 332). This aspect of Plato's approach was fully continued by Aristotle in his *Lykeion*. Without entering into discussion of more detailed intersections between systems of teaching of three great philosophers, I would like to emphasize the following points of Aristotelian approach to education, which I assume to be the most important nowadays.

These points are (1) integrity of knowledge, (2) wonder as the beginning of knowledge, (3) oral communication as a way of organizing knowledge, and (4) knowledge as a necessary and special element of lifestyle.

Let us start with the first point: integrity. How has it been revealed in the educa-tional system of Aristotle?

(1) An indication toward integrity and commitment to **integrity** are present (a) in the mandatory establishment of generic relations, when any object of study is considered, and in establishing the system of the most general categories, and (b) in the methodological support of knowledge.

(a) We will consider these two aspects successively. According to Aristotle, philosophy and logic play a key role in education as the forms of implementation of a unified approach in any field of knowledge. It is philosophy that turns knowledge "scientific," that is, in the understanding of Aristotle, the knowledge which is built from the beginnings, from the first principles. "Clearly then it is the function of the philosopher, that is, the student of the whole of reality in its essential nature, to investigate also the principles of syllogistic reasoning. And it is proper for him who best understands each class of subject to be able to state the most certain principles of that subject; so that he who understands the modes of Being qua Being should be able to state the most certain principles of all things. Now this person is the philosopher, …" ([1, 2], Metaphysics, 1005b). The first principles of everything are explored by theology, and, consequently, less general principles are examined by specific sciences. Thus, Aristotle transfers philosophical approach to any sphere of research, and any knowledge is built systematically. Hence, the methodical analysis is applied to everything under research. Namely, Aristotle is the one who sets the system of categories in his *Metaphysics*—essence, quality, place, action or suffer-ing, relation, and quantity, and then he sets more extensive list of categories in the *Categories*. Aristotle states: "Clearly, then, it pertains to one science to study Being qua Being, and the attributes inherent in it qua Being; and the same science investi-gates, besides the concepts mentioned above, Priority and Posteriority, Genus and Species, Whole and Part, and all other such concepts" ([1, 2], Metaphysics, 1005a). Due to the emergence of categories—the specific concepts that cannot be defined by the principle of gender and species differences (because they are the most general of their kind)—it is possible to freely build a generic chain that has been impossible

before the emergence of philosophy. Plato, followed by Aristotle, rationalized the relationship between concepts. Aristotle built categories as a system.[2]

(b) The method developed by Aristotle provides a unified approach to the study of any phenomenon. For instance, he begins his *Physics* not with the concept of movement but from methodological instructions. The first chapter begins with the definition of true knowledge (*to epistasmai* - from *he episteme* - science): "When the objects of an inquiry, in any department, have principles, conditions, or elements, it is through acquaintance with these that knowledge, that is to say scientific knowledge, is attained. For we do not think that we know a thing until we are acquainted with its primary conditions or first principles, and have carried our analysis as far as its simplest elements. Plainly therefore in the science of Nature, as in other branches of study, our first task will be to try to determine what relates to its principles" ([3], Physics, 184a). This means that the researcher has to move from general to specific. Of course, speaking of physics, we assume that it is an inductive science, but if we attribute Aristotle's approach not to obtaining knowledge, but to its representation, it turns out to be quite relevant here. We can do this because in teaching we are not just obtaining knowledge but have to present it to students.

In a similar way, Aristotle approaches judicial practice, which is very far from physics: "... Most important of all, because a judgment of a lawmaker is not about a particular case but about what lies in the future and in general, while the assemblyman and juror are actually judging present and specific cases ..." ([5], Rhetoric, 1354b). This approach allows to lay the foundation of theoretical jurisprudence.

Practical disciplines are built by the same logic. Thus, Aristotle begins his ethical teaching with the definition of the good as the goal of any art and, accordingly, shows how specific benefits, like health, victory, and wealth, are subjects to more general benefits. "Now, as there are many actions, arts, and sciences, their ends also are many; the end of the medical art is health, that of shipbuilding a vessel, that of strategy victory, that of economics wealth. But where such arts fall under a single capacity — as bridle-making and the other arts concerned with the equipment of horses fall under the art of riding, and this and every military action under strategy, in the same way other arts fall under yet others — in all of these the ends of the master arts are to be preferred to all the subordinate ends; for it is for the sake of the former that the latter are pursued" ([4], Nicomachean Ethics, 1094a). The number of examples can be easily multiplied. Obviously, Aristotle's approach in all these cases is based upon the assumption that as the world is consistent in its entirety, the methodology should be commensurable to it.

(2) Now we turn to **wonder** (*to thaymadzein*) as the beginning of knowledge. Aristotle talks about wonder and the ability to be surprised in two famous places from *Metaphysics*. Let us start with the second one: "... All begin, as we have said, by wondering that things should be as they are, e.g. with regard to marionettes, or the solstices, or the incommensurability of the diagonal of a square; because it seems wonderful to everyone who has not yet perceived the cause that a thing should not be measurable by the smallest unit. But we must end with the contrary and (according to the proverb) the better view, as men do even in these cases when they understand them; for a geometrician would wonder at nothing so much as if the diagonal were to become measurable" ([1, 2], Metaphysics 983a). So what is wonder according to Aristotle?

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[2] Émile Benveniste demonstrated that this system reflects the specific grammatical structure of the Ancient Greek; however in this case it does matter, because Aristotle started to apply these general concepts not in the sphere of linguistics but in the sphere of general knowledge.

First, it seems necessary to understand wonder as the reaction to a deviation from the norm, in the most extreme cases, to a deviation that goes beyond the possible. By providing the example with toys (marionettes), Aristotle has in mind a situation where this reaction can proceed in the interest and demand of research and response. Secondly, he is talking about the surprise of the researcher, who moves from the opposite: he starts from the idea that the diagonal is commensurate; however by exploring the case comes to the contrary—the diagonal is incommensurable. Aristotle, as we have seen, speaks of two types of wonder: (1) the surprise arising from the observation of something unusual and (2) surprise that contradicts to the theory, in this case—to geometry. The surprise of the possible commensurability of the diagonal of the square is the surprise of the geometer, a man who already knows the theory. And here we are talking only about the fact that by reasoning from the opposite (from something amazing), Aristotle becomes convinced of the correctness of the idea of incommensurability.

Yet neither the example of marionettes nor the example of incommensurability leads to the search for new knowledge. Let us now turn to the earlier passage: "It is through wonder that men now begin and originally began to philosophize; wondering in the first place at obvious perplexities, and then by gradual progression raising questions about the greater matters too, e.g. about the changes of the moon and of the sun, about the stars and about the origin of the universe. Now he who wonders and is perplexed feels that he is ignorant (thus the myth-lover is in a sense a philosopher, since myths are composed of wonders); therefore if it was to escape ignorance that men studied philosophy, it is obvious that they pursued science for the sake of knowledge, and not for any practical utility" ([1, 2], Metaphysics, 982a). Thus, for Aristotle wonder becomes the beginning not only of philosophy but also of any reflective intellectual activity, due to the fact that myths are represented in the works of poetry. Fran O'Rourke draws attention to this point in his work, saying that the philosopher, according to Aristotle, "relies greatly upon the poet, the 'maker' of myth, who, through allegory, symbol and metaphor, shapes a meaning from the welter of human happenings by weaving them into a pattern and narrative of wider cosmic order. Although Aristotle does not state that the poet is engaged in wonderment of the totality … the juxtaposition and comparison of philosophy and poetry allow us to make this assumption" ([18], p. 31). O'Rourke emphasizes the point that, according to Aristotle, philosophy deals with totality (*pantos*), linking totality and wonder. Aristotle shows that from the beginning wonder leads to the creation of a myth. Myth replaces ignorance by stating the problem. Later philosophy starts to explore the problem in a systematic way.

Thus, according to Aristotle, wonder is necessary to indicate toward the situation of misunderstanding and incomprehension. Namely, this situation, in turn, generates interest, which, in relation to the most important things for a person, is presented in myths. Myths, in turn, raise questions, and they require systematic research of a philosopher or scientist.

It is interesting to note that Aristotle directly connects knowledge with leadership and, therefore, power. In *Rhetoric* he says: "And sine to be the leader is pleasantest, to seem to be wise in a practical way is a quality of leadership, and wisdom is a knowledge of many and admirable things" ([5], Rhetoric, 1371b). Aristotle understands that in society the power of myths is enormous, and, given this, the value of wonder is increasing even more.

In teaching, we can take these considerations in a slightly different way turning myths into hypotheses (taken as preliminary presuppositions) which are formulated to answer the question raised by wonder. I think that this substitution is not far from what Aristotle had in mind. Only the answer to a well-understood problem provides us with knowledge which will be stored in long-term memory.

(3) Let us now turn to the third point: the specifics of **oral communication** in comparison with the written. Here it is worth to pay attention to the nature of the organization of communication. Suffice to note that the guidance of Socrates was based precisely on his ability to influence the listeners by oral speech (e.g., it is possible to recall the speech of Alcibiades in Plato's *Symposium*). Namely, in this position of oral teacher, Socrates has become an enduring role model. Aristotle sets another type of oral communication, more consistent with his nature—teaching in the process of walking. Note that walking almost completely excludes direct recording. If we consider that the extant texts are mostly student records of Aristotle's lectures, it means that the students recorded them from memory, sometime after these lectures had been pronounced, that is, it is not a direct abstract but some later reproduction. It is worth, of course, to keep in mind that memory in a society where oral communication plays a decisive role, on average, was much more developed than memory of our contemporaries, when it is possible to find the right link, the right text in the book, or, even more effectively, at any time to turn to the help of a smartphone. It was necessary to keep a long chain of reasoning in mind. Thus, the retelling of some scenes in the dialogues of Plato may not have been fully written and was presented to a large extent as a record of spoken dialogues. A long narrative based on memory was normal practice. It is well-known that much attention was paid to the development of the memory by the Pythagoreans, and Plato and Aristotle went in line with this tradition.

In addition, for oral communication, it is very important to demonstrate the right intonation and clarity of speech. "There are three things which require special attention in regard to speech: first, the sources of proofs; secondly, style; and thirdly, the arrangement of the parts of the speech. We have already spoken of proofs and stated that they are three in number, what is their nature, and why there are only three; for in all cases persuasion is the result either of the judges themselves being affected in a certain manner, or because they consider the speakers to be of a certain character, or because something has been demonstrated. ... In the first place, following the natural order, we investigated that which first presented itself—what gives things themselves their persuasiveness; in the second place, their arrangement by style; and in the third place, delivery, which is of the greatest importance but has not yet been treated of by anyone. In fact, it only made its appearance late in tragedy and rhapsody, for at first the poets themselves acted their tragedies" ([5], Rhetoric, 1403b, 1404a]). The subtlety of the assessment spoken in Ancient Greece is known; it is sufficient to recall the case that the actor Gegeloh has been ridiculed in one of Aristophanes' comedies because he made a mistake in emphasis. In general, diction was a high priority. Such a reverent attitude to the spoken word raised its value much higher than in nowadays and, accordingly, drastically increased the impact on the listener.

Another important aspect of the primacy of oral communication is its dialogic nature, which is radically different from our primarily monologic reality. Involvement in the subject was being organized through dialogue, not through abstract acquaintance with it, especially with the usage of written text. Undoubtedly, students were able to ask questions and certainly greatly enjoyed this opportunity.[3] The very nature of oral communication suggests that the listener much more actively delves into the matter here and now, and this requires (especially when discussing complex subjects) clarification or raising objections. Naturally, the very impression of the subject was associated with the situation of its perception—with the teacher's intonations, with his reactions to questions, and

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[3] As far as we know, this possibility was forbidden for so-called *akousmatikoi*; however this was the norm in communication of Pythagoras with *mathēmatikoi*.

with his manner of reasoning. All these aspects are lost when translating oral text into written. This was especially important in philosophy which embraced at that time a much wider range of subjects.

(4) Let us now turn to the last point—**knowledge as a necessary and special element of lifestyle**. The purpose of philosophizing was to build a way of life in accordance with certain principles. Aristotle formulated the difference between philosophy and other disciplines: "… Dialecticians and sophists wear the same appearance as the philosopher, for sophistry is Wisdom in appearance only, and dialecticians discuss all subjects, and Being is a subject common to them all; but clearly they discuss these concepts because they appertain to philosophy. For sophistry and dialectic are concerned with the same class of subjects as philosophy, but philosophy differs from the former in the nature of its capability and from the latter in its outlook on life. Dialectic treats as an exercise what philosophy tries to understand, and sophistry seems to be philosophy; but is not" ([1, 2], Metaphysics, 1004b]). It is also the continuation of the two-century tradition of wisdom.

Pierre Hadot paid attention to the idea of philosophy as a way of life, not just thinking as such. He writes: "These theories - which one could call 'general philosophy' - give rise, in almost all systems, to doctrines or criticisms of morality which, as it were, draw the consequences, both for individuals and for society, of the general principles of the system, and thus invite people to carry out a specific choice of life and adopt a certain mode of behavior." And Hadot continues: "… Philosophical discourse must be understood from the perspective of the way of life of which it is both the expression and the means. Consequently, philosophy is above all a way of life, but one which is intimately linked to philosophical discourse" ([16], pp. 2-4). Although Aristotle seems for modern readers to act as a philosopher, striving for pure knowledge, that is, knowledge that is valuable for its own sake, Hadot shows that this is not the case. Aristotle in his approach to teaching differs significantly from Plato. If the Academy prepared people for political life, *Lykeion* prepared for the life of a philosopher. Obviously, for Aristotle, philosophy is "a theoretical" way of life. "In modern parlance, 'the theoretic' is opposed to 'the practical' the way the abstract and speculative is opposed to the concrete. From this perspective, then, we may oppose a purely theoretic philosophical discourse to a practical, lived philosophical life. Aristotle himself, however, uses only the word 'theoretical' [*theoretikos*], and he uses it to designate, on the one hand, the mode of knowledge whose goal is knowledge for knowledge's sake, and not some goal outside itself; and on the other, the way of life which consists in devoting one's life to this mode of knowledge. In this latter meaning, 'theoretical' is not opposed to 'practical.' In other words, 'theoretical' can be applied to a philosophy which is practiced, lived, and active, and which brings happiness" ([11], pp. 80–81). Since philosophy is a certain way of life, it definitely carries an ethical principle: "… 'theoretical' philosophy is at the same time a certain ethics. Just as virtuous practice is not to choose for itself a purpose other than virtue, to strive to be a good man, not counting on any private benefit— 'Just as virtuous praxis consists in choosing no other goal than virtue and in wanting to be a good person without seeking any particular interest, so theoretical praxis (it is Aristotle himself who inspires us to hazard this apparently paradoxical phrase) consists in choosing no goal other than knowledge. It means wanting knowledge for its own sake, without pursuing any other particular, egoistic interest which would be alien to knowledge. This is an ethics of disinterestedness and of objectivity" ([16], p. 81). Hadot notes that Aristotle is well aware that such a lifestyle requires that the material side of life is ensured. Economic side of life plays a significant role; however this does not occlude the intellectual striving.

Aristotle speaks of economics as of the basis for the transition to public activity, to the activity of the citizen, which is the nature of a real human being. According

to Aristotle, through ethics and law, a person defines himself within the political community (*koinonia*). "Since the main mechanism of self-identification is the correlation, feeling and self-realization within the political community, the main definition of the Greek is his civil belonging to a certain city-state. The state is the highest, and the most perfect form of political communication of equal people (*homilia*)" ([13], pp. 189–190). Political communication is possible only due to speech. Namely, speech makes it possible, and we come to the point of intersection of oral communication (speech) and lifestyle. The speech itself, according to Aristotle, contains an ethical principle. He begins his *Politics* with the statement that the most important and embracing all other types of communication is political communication, that is, communication within the state. However, communication is based on speech: "... Man alone of the animals possesses speech. The mere voice, it is true, can indicate pain and pleasure, and therefore is possessed by the other animals as well ... , but speech is designed to indicate the advantageous and the harmful, and therefore also the right and the wrong; for it is the special property of man in distinction from the other animals that he alone has perception of good and bad and right and wrong and the other moral qualities, and it is partnership in these things that makes a household and a city-state" ([1, 2], Politics, 1253a). It is obvious that a person can become a true human being only due to the fact that he is included in this system of social relations, civil relations, in particular.

In other words, we come to the problem of self-identification, where education plays a key role. Returning to the current situation in education, it is necessary to raise the question: is it possible to provide a sustainable self-identification if the individual trajectory of education is realized in full capacity? On the one hand, it is obvious that the individual trajectory of education is inevitable, because everyone learns the same things in different ways. All people are taught by the same samples of writing, but for apparent reasons everyone's handwriting is different. On the other hand, it is understandable that people need a common knowledge platform to have a meaningful communication. If we exaggerate the idea of the initial choice of individual trajectories, communication will be reduced to a relatively small number of everyday topics, such as weather and the latest news. People who are taught this way are very easily manipulated. Otherwise, their way of life can be easily set and controlled from the outside. If this is stated as the aim of education, we have to forget the experience of the great ancient thinkers. It is quite useful to recall the role played by Aristotle's pupils in foundation of the greatest scientific institution of antiquity—Alexandrian *Museion* and the library.

3. Conclusion

What follows from the reflection upon Aristotle's approach to teaching in comparison with the current trends in education? Why is it relevant?

1. The significance of Aristotle, compared to the recent situation in education, starts with the counter-mosaic approach to teaching. The teacher has to strive toward systematic knowledge, which is possible only through the formation of a broad view of the subject based on the links with other subjects, creating at the end a hierarchical structure from first principles to the particulars. This underscores the importance of integral courses, including humanitarian ones.

2. The wonder that precedes the answer to the problem makes this answer and the relevant knowledge involved valuable and thus becomes part of long-term rather than short-term memory. The so-called problem approach is a kind

of attempt to implement what Aristotle means, but it should be included in a broader context of questioning. It is possible to teach students to wonder; however this is not the same as putting them in a problematic situation. The latter is something artificial and secondary: the ability to wonder means the ability to intellectually create the problematic situation. It is part of life rather than part of the educational process. Yet only the ability to be surprised leads to the ability to raise questions, and after that the problem is formulated. It requires an appropriate mindset.

3. Oral communication about complex matters teaches concentration, the ability to highlight main points, to keep the thread of the narrative. It forces students to ask questions, turning a monologue of the teacher into a dialogue between teacher and student. Modern pedagogical practices are moving along the path of increasing the role of visualization, while philosophical courses should be based primarily on oral communication. Also, in teaching other disciplines, more attention should be paid to oral communication and dialogue as a form of resolving the problem situation.

4. Understanding that any knowledge is ethical in nature by itself makes the teaching more responsible. Striving for the truth and awareness of the power of acquired knowledge should accompany teaching from the very beginning. If these conditions are obeyed, education is aimed not toward the formation of a narrow specialist but toward the creation of a responsible citizen, who is much more an individual than a modern seeker of an individual educational trajectory.

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Section 3

Teaching as Practice

Challenges Faced by Educators in the Implementation of Continuing Professional Teacher Development (CPTD): Gauteng Province

Gomba Georgina Kedibone Bernadine

Abstract

Continuing Professional Teacher Development (CPTD) is a system that encourages educators to grow professionally. CPTD is managed by the South African Council for Educators (SACE). All educators were trained on CPTD system, but implementation at school level is a challenge because most of the teachers are technophobic and Continuing Professional Teacher Development is an electronic system. The purpose of this study is to identify the challenges that educators face in the implementation of Continuing Professional Teacher Development, and suggest improvement measures to the system. This research was a qualitative study based on the diffusion of innovation theory. Data was collected through interviews and document analysis. A total of 2 school principals and 10 educators and 2 union members and 2 district officials were purposely selected. Thematic method of data analysis was conducted. Conclusions and recommendations were drawn based on analyzed data. The study revealed that there is minimal support and monitoring taking place in schools. In addition, educators are demotivated since CPTD has no monitory incentive like Integrated Quality Management System. The study recommended that with relevant monitoring and support, educators can be motivated to participate in CPTD programmes, and professional development can be a reality.

Keywords: challenges, educators, Continuing Professional Teacher Development

1. Introduction

Professional development is the cornerstone for quality education to be realised in every organisation and the teaching fraternity is not an exception to the rule. During the apartheid era, the South African education was organised into racially and ethnically divided sub-systems. Since 1994, the education system was rationalised into one, single education system, introducing new curriculum which required teachers to have new knowledge and applied competence. With the onset of curriculum 2005, learners were expected to be active participants in the classroom. Assessment strategies also moved summative to being more formative in nature. The teacher took the role of facilitator to promote the creation of meaning in classroom

instruction [1], in the National Policy Framework for Teacher Education and Development in South Africa states that, the National Teacher Education Audit conducted in 1995 showed that a third of the teaching force at that time was engaged in qualification-driven in-service education, and that in many instances, though there were considerable rewards in terms of salary increases, such qualifications had little or no impact on classroom practice. It was on the basis of this that it was found to be critical that all teachers need to enhance their skills for the delivery of the new curriculum. It is also emphasised in the policy framework that a large majority of teachers need to strengthen their subject knowledge base, pedagogical content knowledge and teaching skills. This was a serious call for priority to be given to educators' professional development. Replace the entirety of this text with the introduction to your chapter. The introduction section should provide a context for your manuscript and should be numbered as first heading. When preparing the introduction, please bear in mind that some readers will not be experts in your field of research.

2. What is professional development

According to Steyn and van Niekerk (2002) in [2] professional development describes an ongoing development programme that focuses on the whole range of knowledge, skills and attitudes required to educate learners effectively. Gulston [2] further explains that professional development emphasises the participation of educators or educational leaders in development opportunities in order for them to be better equipped with knowledge and skills.

Quality in education is something that we should focus on as a system of education. It is for this reason that the one most important factor why educators should be professionally developed is based on the conviction that the quality of teachers influences the quality of learners' performance and achievement. It is true because professional development needs to be prioritised within the education system because it is important in improving or enhancing ones knowledge and skills. Mestry et al. [3] mentioned that raising the quality of teacher performance through teacher development programmes is essential, it is believed, to improve the overall performance of the education system, which makes the debate about school type, school-by-school performance, and class size, among others, look irrelevant. Pitsoe and Maila [4] emphasised this point by mentioning that teacher professional development plays an important role in changing teachers' teaching methods and assisting teachers to move beyond a comprehension of the surface features of a new idea or innovation, to a deeper understanding of a topic.

Teacher professional development should therefore, be looked at as a continuous process. This is true because learning is a lifelong process. If teachers do not keep up with the global changes, especially those that come with technology, then they will not fit in this era. It is on this basis that continuing professional development (CPD) is prioritised.

3. What is continuing professional development (CPD)

Oxbridge Academy [5] defines CPD as a term used to describe learning activities that professionals take part in to develop and enhance their skills. There are many forms of continuing professional development activities available, which include workshops, conferences, consultation, coaching, both peer coaching and expert coaching, and courses which can either be to enhance existing professional

qualifications. CPD activities further also consist of demonstrations and peer observation, mentoring, inductions for beginner teachers, job rotation, teamwork and group work, clustering of schools and school visits, as well as designing and executing school improvement projects, communities of practice, lesson studies, reflective supervision and technical assistance [2]. We also see [6] highlighting the method of cooperative or collegial development, cascade or generation method, case study, skills development method, reflection, project method, narrative method, self-development, seminars, workshops, institutes, conferences, courses, observation of excellent practice, teachers' participation in new roles, portfolio, action research, students' performance assessment, supervision, coaching and mentoring are forms of Continuing Professional Teacher Development in Great Britain, Canada and USA.

Allen [7] defines CPD as a process 'of tracking and documenting the skills, knowledge and experience that you gain both formally and informally as you work, beyond any initial training. It's a record of what you experience, learn and then apply'.

According to [8] CPD encompasses a wide variety of approaches and teaching and learning styles in a variety of setting (inside or outside of the workplace) it is distinguishable from the broader concept of learning. It is primarily related to people's professional identities and roles and the goals of the organisation they are working for.

The CPD process helps you manage your own development on an ongoing basis. It is function is to help you record, review and reflect on what you learn. It is not a tick-box document recording the training you have completed. It is broader than that. The CPD process helps you manage your own development on an ongoing basis. It is function is to help you record, review and reflect on what you learn. It is not a tick-box document recording the training you have completed.

Day (1999) in [9] states 'Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school, which contribute, through these, to the quality of education in the classroom'. Based on this definition, they agree that the purpose of CPD is four-fold. Firstly, it is intended to facilitate the implementation of policy or educational reforms. Secondly, it is aimed towards preparation of staff for the new function. It is also serves the aim of school development, and lastly, it is for personal professional development. Professional development of teachers in South Africa is aligned to these four roles to complement whole-school development. Therefore, professional development of teachers is the cornerstone for the provision of quality teaching and learning. It also implies that teachers never cease to learn. It therefore, puts emphasis on lifelong learning.

Kloosterman [10] mentions that continuing professional development involves maintaining and enhancing the knowledge, skills and experience related to your professional activities following completion of your formal training. Therefore, CPD should be a lifelong (throughout the career of a teacher), systematic, and planned process to maintain and develop professional competence, creativity and innovation. The outcome has value for both the individual and profession. Therefore, professional development of teachers is the cornerstone for the provision of quality teaching and learning. It also implies that teachers never cease to learn. It therefore, puts emphasis on lifelong learning.

3.1 The international context on CPD

The concept of continuing professional development is not peculiar to the South African context alone. Different countries use different policies on CPD for teachers, depending on their context. Guldenhuys and Oosthuizen [11] identify

different trends regarding teachers' CPD. The first trend is that of PD activities are linked to renewing of licences and career advancement or salary benefits or not, and can be optional or not. This is the practice in countries like Germany, United Kingdom, Poland, Portugal, Slovakia, Slovania and Spain. In countries like France, Greece, Iceland, etc. CPD is seen as a professional duty, but participation is optional. This is the practice in South Africa where CPD is treated as a duty for teachers, however teachers are given varied options of programmes for participation. They also earn different points for their participation in different activities and programmes.

The second trend identified by Day and Sachs (2004) in [11] is that PD activities can also be initiated by the authorities. This trend is observed in countries such as Australia, America and Japan, although there has not been a success with such trends and South Africa is no exception to this with some of the professional development being unauthorised and non-endorsed and imposed on teachers. The last trend is that of the role of research on professional development as observed in New Zealand where a research was commissioned to see what works and why to improve education outcomes. Such information was used to guide educational policy and practice about the conditions, both necessary and sufficient for professional development that has transformational impact at system level [11].

There are other countries, like the Netherlands that have introduced continuing professional development for their teachers due to changes effected in their curriculum. Seezink and Poell [12] assert that the secondary schools in Netherlands have been granted increasing autonomy by the Dutch central government to reform their curriculum and teaching methods. Reforms were then undertaken to make educational programmes more competence based. Many teachers then had trouble moving into their new roles and tasks associated with competence based education programmes (from an expert into a coaching role). This was experienced by educators in South Africa when outcomes based education moving from content based education with the teacher as a facilitator of currently National Curriculum Statements (NCS). There was a demand to improve the quality of teaching and learning. The Department of Education then realised that there is a need to develop and support educators on a continual basis. Since then, issues relating to effective professional teacher development have been on the agenda of the Department of Education in South Africa. Continuing professional development (CPD) is the means by which professionals maintain, improve and broaden their knowledge and skills and develop the personal qualities and competencies required in their working lives. It is a process for setting yourself objectives for development then charting your progress towards achieving them. It is about where you want to be and how you plan to get there.

4. Continuing Professional Teacher Development in the South African context

In South Africa the continuing professional development of teachers is managed through the implementation of Continuing Professional Teacher Development (CPTD) system. Ref. [13], through the National Policy Framework for Teacher Education and Development, mandates the South African Council for Educators (SACE) to manage the system. Therefore, as stated by [14] in the SACE professional development and research mandate, 'the South African Council for Educators (SACE), as a statutory body for professional educators has overall responsibility for the implementation, management and quality assurance of the CPTD system'. The OECD report on reviews of national policies for education in South Africa (2008) emphasised the role of SACE in teacher development by mentioning that 'SACE is

one of the most important bodies for the teaching profession in South Africa and it is well positioned to improve the public image of teaching' [15]. The system encourages educators to engage in professional development in order to achieve maximum benefits, hence the system awards points to the teachers for their development.

Research shows that an inspiring and informed teacher is the most important school-related factor influencing learner performance. Given the poor performance of South African schools in this area, it is critical that we pay close attention to how we train and support both new and experienced educators. Continuing Professional Teacher Development (CPTD) is an integral part of teacher education because only continued learning and training assures a high level of expertise and ensures teachers keep up-to-date with new research on how children learn, emerging technologies for the classroom and new curriculum resources [16].

Ref. [17] proclaims that The CPTD Management System will be made available to all teachers whether state-employed, employed by School Governing Bodies, or employed by independent schools. Ref. [17] reiterates that 'The main ideas are to encourage teachers to become better at their jobs and to encourage school communities to become better sites of teaching, learning and development'. The teaching profession is seen here as a revolving profession, especially with changing technology. So educators are expected to learn on a continued basis to be able to meet the global demands. CPTD is one way to encourage this. 'Professional development is part of SACE's Code of Professional Ethics for educators'. Each educator pledges to uphold the Code when they register with SACE. Section 7 of the SACE Code says that all educators must 'keep abreast of educational trends and developments' and 'promote the on-going development of teachers as a profession' [17].

Among the prescripts of SACE is that each educator develops a Personal Development Plan (PDP) file as part of the CPTD system. The PDP is a resource document to assist each teacher with professional growth. It will contain:

- Advice on understanding and analysing a teacher's professional development needs.

- The teacher's analysis of professional development needs (PGP).

- Guidance on how the teacher can undertake or access professional development activities.

- Information on the CPTD Management System.

- A record of the teacher's PD activities and PD points.

- Links between the teacher's PD activities and quarterly work schedule [17].

The PDP is a resource file in which the teacher is expected to record his or her CPTD activities. The activities have value for professional development. Therefore, teachers will be allocated points on the basis of such activities when they report them through the CPTD system. These include the following:

- Type 1 activities: these are teacher initiated activities.

- Type 2 activities: these are school initiated activities.

- Type 3 activities: these are externally driven activities offered by outside service providers.

5. Theoretical background

Diffusion of innovation theory was adopted for the study. The diffusion of innovation theory is one of the social science theories which was developed by Rogers in 1962. The theory relies on human capital and believes that innovations should be widely adopted in order to attain development and sustainability. The diffusion of innovation theory is regarded as an important change model for guiding technological innovation. Where the innovation itself is modified and presented in ways that meet the needs across all levels of adopters. The diffusion of innovation refers to the process that occurs as people adopt a new idea, product, practice, philosophy, and so on [18]. Rogers believed that in a social system the innovation is communicated by the process of diffusion. This process occurs at different stages. The stages include:

1. Awareness of the need for an innovation.

2. Decision to adopt or reject an innovation.

3. Initial use of an innovation to test it.

4. Continued use of the innovation.

The other important thing about the theory is about who makes the decision to accept the innovation. Rogers came up with three ways of taking decision about acceptance of an innovation. These include optional wherein individuals made a decision about an innovation in the social system by themselves. The second way is through a collective, wherein a decision to accept an innovation is made by all individuals in a social system. Lastly, the decision to accept an innovation can be made by the authority, wherein few individuals makes a decision for the entire social system.

The CPTD, in line with the theory is new innovation within the education system, and an electronic system, which has been advocated to all teachers at different levels and must be adopted and put to practice for the benefit of their continuing. Professional development. It would be interesting to establish where educators are in terms of the stages in this theory regarding CPTD implementation. It will also be interesting to establish how information on CPTD is communicated and sustained for educators.

6. Methodology

The research was conducted through a qualitative interpretivist approach. Qualitative research is viewed by [19], as a paradigm that recognises that researchers bring in their subjectivity (views, perspectives, framework for making sense of the world, their politics and passions). Saving-Baden and Howell Major [20], on the other hand, define it as a social research aimed at investigating the way in which people make sense of their ideas and experiences. They also emphasise that qualitative research focuses on an emic perspective of views of people and their perceptions, meanings and interpretations. The researcher, therefore, focused on the way teachers see their world within the continuing professional development.

A case study design was used as the method of research with one school selected for the study. The population interviewed school principals and teachers, district officials and union members. Purposive sampling was used for their selection. All educators selected are the ones who have been trained, and declared ready, to

implement Continuing Professional Teacher Development system. The district officials were selected on the basis of their involvement in CPTD training, monitoring and support. Data analysis was conducted through the use of thematic approach. This involved the characterisation of collected data, through the establishment of relationships between concepts and ideas. Common themes were then identified and these were further interpreted to create meaningful findings on the research topic.

7. Discussion

CPTD has been well received by the department and teacher unions as a system for managing and monitoring teacher professional development, however it has not been without its challenges. In the light of this the following challenges in the implementation of CPTD were identifies in this study.

7.1 Challenges of CPTD implementation

7.1.1 Poor or non-participation of teachers in CPTC activities

There is generally non-participation of educators in the system due to inaccessibility of IT and resources (Gadgets), particularly for those schools where network is poor. One educator stated this:

> 'We are expected to register and make our submissions through the CPTD electronic system, yet our schools do not even have WI-FI. Even in cases where schools have WI-FI, data for the school is limited and is used for administrative purposes. Maybe our principals will manage because they get free data from the department'.

One principal mentioned the following:

> 'It is true that we get data from the department, however this is not enough to cater for all our needs as a school. Some of us were "born before technology" so we do not even know how to use these gadgets properly'.

It is clear from the inputs of educators above that CPTD implementation is a serious challenge, not unless all educators have access to resources.

7.1.2 Lack of interest by some educators

Ageing profession or those near retirement are reluctant to participate, Educators who are in the retirement brackets, and who are in the majority reluctant to participate. This came out strongly from those educators who are left with 1–3 years of service within the department of education. This is in agreement with the findings from the study conducted by [21] when they stated that in each career cycle teachers vary in their concerns and commitment, including their professional development behaviour and needs. Richter et al. (2011) in [11] emphasised this when they mention that teachers in their final stage of teaching tend to reduce their commitment and career ambition. They focus more on their personal goals. One of these educators responded by saying that:

> 'What is that CPTD? Will it be of benefit to my retirement? I am too old to start new programmes in the profession. All I want is to retire and go home to rest'.

A greater percentage of educators are technophobic and as a result do not participate. This is illustrated in the words of one principal above when he confessed that some of them cannot even use these gadgets properly.

7.1.3 Poor planning by SACE

The CPTD Portal's capacity disadvantages the educators reporting processes. The electronic submission system of SACE also has its challenges and requires upgrading. Teachers have a challenge of accessing or even operating the CPTD system. Educators end up submitting hard copies of their forms, which creates another problem of capturing for SACE and this, leads to resubmission.

7.1.4 Lack of support by school management

There is lack of systematic and regular monitoring of teachers' reporting progress. This is an area neglected by management in schools. There is no good planning for CPTD activities and programmes at school level. The school management do not allocate time for these activities and the school principals as the driving force in their schools, do not see to it that teachers participate or have the ability to participate in CPTD programmes. The fact that teachers are aware of the 6 years of free punitive measure that has been put in by SACE makes them even more reluctant to participate. This is contrary to the idea of implementing CPTD as a form of duty for teachers. One HOD at school said:

> 'My main concern is to manage the subjects I am leading, not CPTD. It is not part
> of my job description. Each educator should manage his/her own CPTD activities.
> We all have our CPTD to manage. In fact, what is that?'

It is evident that no one wants to take responsibility to mage CPTD activities in schools. As a result, it becomes a neglected programme in the system.

7.1.5 Selective reporting

Reporting by teachers is mostly concentrated around Type 1 activities and Types 2 and 3 are neglected. Most teachers engage in these activities on a daily basis. Most of these activities are not linked to their individual development needs as identified in their appraisal process. This shows that there is a gap between CPTD activities and IQMS activities in schools. This is another factor that leads teachers to a point where they do not value CPTD programmes.

7.1.6 Lack of explicit relationship between CPTD and other existing developmental programmes

CPTD considered a compliance tool than a professional development activity. Although CPTD is part of the code of conduct for educators. Even though teachers are aware of CPTD and know that it is important for their professional development, some of them still have attitude. One educator was asked;

> 'What is that CPTD of value to my salary? We are interested in programmes that
> will benefit us financially. We need money to survive in life'.

It is evident from the statement above that some teachers wish CPTD would benefit them like IQMS does.

7.1.7 Lack of or poor ICT skills

Some teachers are technophobic and would not be encouraged by any system that is technologically driven, particularly those who are old in the system and had little exposure to technology. Lost or forgotten Username and Password is another challenge for such teachers. Some teachers fail access the CPTD electronic system because they do not have the correct username and password. Even when one has computer skills it is easy to forget the Username and Password.

7.2 Conclusion and recommendations

This chapter focussed on the challenges that educators face in the implementation of Continuing Professional Teacher Development with the aim of suggesting the strategies for improvement. The study revealed that CPTD is necessary to guide educators' professional development, however there are factors that impede educators from implementing it properly, as identified in the themes above. In terms of the challenges identified in the discussion section, the following recommendations were suggested:

- ICT literacy programme to be made available for teachers. Supporting the effective application of ITC skills may serve as a foundation for successful CPTD implementation in South Africa. The programme should also be made part of the curriculum for initial teacher training and be made compulsory for all students.

- CPTD is limited by issues of time. A link should be established with teacher centres for teachers to access technological resources with ease. The need for warm bodies to support CPTD implementation cannot be underestimated here. Support officers must be appointed at the teacher development centres to help with IT skills.

- CPTD should also be part of the curriculum at the initial teacher training programmes in tertiary institutions. There is a need for a module that focuses on CPTD for teacher education in South Africa as CPD participation is understood as a duty for teachers. This will assist in emphasising the value of professional development from the initial process of training and the need for continuity throughout the teaching career.

- Teachers who fall within the retirement bracket can be excluded from participation, particularly those who are left with 2 years to retire since the CPTD system run in 3 years cycles.

- Advocacy workshops should not be a once off activity. It is important to run such training at least once every year with emphasis being put on the development role of CPTD and how it is linked to other programmes like IQMS. This will help teachers to value CPTD for what it is and not link it to monetary incentive. The emphasis on the developmental value of CPTD will motivate teachers to participate. It will also erase the view that teachers have about CPTD as a SACE thing. They will understand that they also have a responsibility for their individual development.

This study was important in that it gave the educators a voice to raise their concerns about CPTD implementation. They also shared their experiences in the implementation of CPTD programmes and made valuable suggestions for

improvement. Teacher professional development is a progressive activity and must be prioritised by all who are involved. It is one form through which quality teaching and learning can be realised as educators improve on their knowledge and skills to keep up-to-date with the global trends.

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Chapter 10

Culturally Relevant Teaching

Teboho Solomon Ngubane

Abstract

This chapter intends to highlight the importance of Relevant Teaching, hereinafter referred to as CRT within South African context in the twenty-first century. CRT will contribute towards achieving quality education. This chapter is conceptual by nature and a desktop literature was employed. CRT may have positive impact on the life of Africans because they have experienced poor education since the early 1900s after the Nationalist Party decided to develop a system of education that had a negative impact on the culture of African people as the backbone of their nation. In order to attempt addressing the culturally relevant teaching quest, this chapter discusses Bantu education, African Traditional Education, Western type of education, education as a foundation, ever changing needs, and curriculum as a core business for teaching.

1. Introduction

There is a continuous concerted effort of using education as one of the vehicles for change to a better life in the whole world. This has seen the whole world converging in 2015 once again to plan for a better future that should be realised around 2030. The United Nations Development Programme (UNDP) was developed after the 17 Sustainable Development Goals (SDGs) 2030 was adopted by 193 countries [1]. Quality education is SDG number four and it is meant to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' [1]. South Africa as one of the SDGs' country, the government had already diagnosed that education for black people in South Africa is very poor and it must be improved [2]. This was despite many school curriculum changes that took place from Curriculum 2005 (C2005) to the Revised National Curriculum Statement (RNCS), then to Outcomes Based Education (OBE) and lastly to the Curriculum and Assessment Policy Statement (CAPS) within 19 years in democracy [3]. According to Chisholm [4], "Inadequate recognition of the curriculum as the core business of the departments" is one of the challenges identified by the ministerial committee that evaluated the implementation of the curriculum. It indicates the existing gap between the relevant stakeholders (black people) and the curriculum when it comes to implementation. One of the conclusions that can be drawn from this setback is that the curriculum is not relevant in addressing needs of black people. It is obvious that teaching is also negatively affected because of the lack of cultural relevance. In addressing the need for policymakers including the curriculum agents to take into consideration the culture of black people that education is intending to develop, would bring to the fore the necessary positive change that should aid the process of developing and realising quality education in South Africa.

2. Literature review

There was an effort from apartheid government in South Africa based on the quality of education that was given to black people in the early 1900. The effort intended that black people must be given poor education that will produce labourers instead of academics because that's what they thought was good enough for black people to remain under the control of white people. In 1945 addressing the South African parliament, Mr. M.D.C. de Wet stated what the apartheid white government meant by poor education for black people when he said the following, which must not be viewed in isolation or one-dimensional because it might be misleading as a good intention towards black peoples' education:

> *"As has been correctly stated here, education is the key to the creation of proper relationship between European and Non-European in South Africa... Put Native education on a sound basis and half the racial questions are resolved... I say that there should be reform of the whole education system and it must be based on culture and background and whole life of the native himself in his tribe... This (present) policy is also a danger to Western civilisation"* [5].

Within the same parliament, Mr. J.N. le Roux supported and clarified what Mr. M.D.C. de Wet meant in his initial address by saying:

> *"We should not give the Natives an academic education, as some people are too prone to do. If we do this, we shall later be burdened with the number of academically trained Europeans and Non-Europeans, and who is going to do the manual labour in the country? ... I am in thorough agreement that we should so conduct our schools that the Native who attends those schools will know to a greater extent that he must be a labourer in the country"* [5].

Culture was at the centre of determining the type of education that blacks were to be given by the apartheid government for their socio-economic and political development. Bello and Idang defines culture as a way of life for the people as it includes everyday life activities like language, dress code etc. When the way of life is taken away or distorted somehow, people tend to lose who they are and where they come from. Instead they will be forced to adopt another way of living which will not represent who they are and their values. To put it into context, policies that had to regulate education, were not supposed to consider black peoples' way of life (culture) for development as academics but instead consider that blacks must be labourers in the country. This resulted in the development of Bantu Education Act of 1953 which was based on the distorted curriculum for blacks.

Distorted school curriculum and the teaching that lacks relevancy has negative effects as it breaks down the culture of black people and promotes the culture and dominance of white people [5]. The result is evident when "Far too many learners are stigmatised as failures, leaving school without literacy and numeracy capabilities, and heading for unemployment and bare survival in a society and global world that thrives on and rewards high-level education and skills, knowledge and innovation" [6]. After considerable efforts by the democratic government to change education, almost all relevant role players in the South African education are now in agreement of the direction to be taken in order to address the challenges identified at different levels. The main challenge is the intended quality education in an unequal education system [6]. In order for the education system to be equal, the culture of the people it is intended to develop must be taken into account when the curriculum is developed. This factor will contribute positively to influence the process of realising quality education.

This literature review points out that culture was intentionally not considered in the curriculum development thus poor education was given to the majority of learners in South Africa which are black. Negative effects were the results even after the democratic dispensation was realised in 1994. "However, all is not doom and gloom, since to a large extent the same policy expectations that were introduced by government after 1994 have been highly instrumental in the advancement of transformation..." within the education sector [7]. Policy makers in the South African education must take into account the way of life (culture) of the majority learners when developing the curriculum.

3. Bantu education

This section briefly discusses the negative impact of Bantu education. The previous apartheid government developed bantu-education with the sole purpose of separating black people from their own culture so that their socio-economic and political needs may not be addressed accordingly. Moloi [8] posits that black people were colonised and dehumanised by white people under apartheid in South Africa. Effects of apartheid are still experienced even after the dawn of new South Africa is realised over two decades ago. Post-apartheid era remains in the dark era of pre-democratic dispensation because of the visible ripple effects of tempering with the culture of black people in South Africa.

The "dysfunction in many of the schools, post-1994, has continued despite government attempts to restore a culture of teaching and learning" [9]. Jenkins [10] quotation better describes the cultural effects in South African education by stating that:

Thus South Africa finds itself today still saddled with a brutalizing, anti-intellectual educational system which is a distorted descendant of what was itself an aberration in the history of the development of Western education - a particular version of education which was developed to serve a small section of the British population during the short period that it had to provide the rulers of the largest empire the world has ever seen or is likely to see again.

To what extent this educational system has produced South African society as we know it today, or has simply lasted because it serves the interests of those who are inclined this way for other historical, cultural and religious reasons, is debatable: the answer is probably something of both.

4. African traditional education

This section looks at ways that African culture should influence the curriculum for CRT to be achieved. A teaching process that takes into consideration the culture of learners must be applicable to any stage of their lives. "African traditional education is based on a philosophy of education, which emphasises learning by doing, respect for elders, lifelong education, training on the job, learning to live and living to learn" [11]. This definition puts forward the culture of education that originally existed in Africa and it was for Africans by Africans before white people colonised Africa. African Traditional Education (ATE) forms the basis of the relevant cultural teaching that is needed in the twenty-first century. A teaching process that takes into consideration the culture of learners it intends to develop at any stage of their lives. The culturally relevant teaching that was informed by lifelong learning prevailed in Africa despite the fact that it was and still is suppressed by the western type of education. Ngubane [12] states:

"The western approach presently in use...employ both western and African teaching approaches in teaching...but the western approach is dominant".

5. Western type of education

There are some good elements of western type of education and this section addresses some of them and their weaknesses. Western type of education will include prior learning and respect to a certain extent because in a western culture, one is able to call an elderly person by name, whiles in an African culture that is not acceptable but instead, it is seen as a form of disrespect. Having school buildings, assessment processes are some of the positive features of western education that should be used in the twenty-first century teaching and learning processes. All in all, the good that is from the western type of education like the assessment should be fused with the good from the Africa Traditional Education like elderly respect to meet the identified need of a culturally relevant teaching in the twenty-first century. Contrary to the good elements, Locke [13] argues that western education is informed by the idea that we are "...all born infants, weak and helpless, without knowledge or understanding (empty slates)". To further elaborate on this point, Scheurman [14] indicates that in a western type of education, the teacher (a) has all the knowledge and (b) is responsible for transmitting that knowledge to the learners. Basically the western education does not recognise learners who did not attend formal education as knowledgeable and skilled.

6. Culturally relevant teaching (CRT)

This section highlights the importance of CRT in the twenty-first century by discussing why teaching environment is relevant and how teacher training impacts culturally relevant teaching.

6.1 Relevant teaching and learning environment

Creating conducive teaching and learning for CRT to be achieved, is discussed in this section. Conducive teaching environment is one of the important contributing factors in delivering an effective classroom lesson. In their "Classroom context for Creativity", Beghetto and Kaufman [15] posit that "...many of the features of optimal learning environments are quite subtle..." and require teachers to pay attention on them in order to create the necessary teaching and learning environment. Several factors come into play in creating a conducive teaching and learning environment. These may include school culture, lesson plan activities, learners' participation in the lesson, classroom setup, lesson presentation, teaching aids and classroom management. The seven factors that have a positive impact on teaching and learning environment are explained as follows because "classroom context matters" [15]:

a. *School culture:* It is based on the culture of teaching and learning within the school premises on whether teachers teach and the learners learn as required;

b. *Lesson plan activities*: Is the lesson plan include activities that will allow learners to participate during the lesson whiles taking into account their culture;

c. *Learners' participation in the lesson:* Are learners allowed to make comments and ask questions during the lesson for better understanding;

d. *Classroom setup:* Is the classroom furniture setup in an inclusive and more discursive manner like in a circular shape;

e. *Lesson presentation:* Is the teacher presenting the lesson that is culturally relevant as effective as possible for learners to better understand what is taught;

f. *Teaching aids:* Are they addressing the lesson content and assisting learners so that they acquire the necessary skills and knowledge;

g. *Classroom management:* Is the teacher managing the classroom as effective as required by facilitating the lesson and allowing learner participation as much as possible.

The majority of the above factors are factors addressing classroom management. Eisenman, Edwards and Cushman [16] posit that classroom management does not receive the necessary attention it deserves in teacher training and it is a general problem in education. It became a real surprise when teachers learn that their training is addressing only a theoretical part of their classroom management [16]. Automatically, this meant, trained teachers will find it difficult to apply this skill practically in the classroom environment. It is now quite clear that practical application of classroom management skill is more important than before. Especially in the twenty-first century where there is diverse teaching and learning environment that teachers are expected to effectively teach in and assist learners to achieve the set specific outcomes.

7. Education as a foundation

Understanding why education is a foundation, would bring forth the importance of CRT in South African education. Education is "the process of teaching or learning in a school, or the knowledge that you get from this" [17]. Human development based on knowledge is key for a holistic development in the twenty-first century because knowledge evolves and demands continuous development. Human beings require some form of education in order to live a meaningful and sustainable life. Formal, informal or non-formal education may have negative or positive impact on human life depending on its policies and curriculum amongst others. Therefore, education is the foundation for human life as it determines the kind of life a person might live in future. "Education is the only bridge that leads people to their better futures. In addition, "… it cannot be separated from human's life" [18]. Different types of education have an important role they are playing in human life, one way or another. Thus we will now turn our attention to the specific role the formal, informal and non-formal education types of education are playing in human life as the foundation for development.

7.1 Formal

A type of education that is formal in nature and it is administered in an institution within a specified period. It involves teachers, learners and an institution. Teachers have to teach, learners to learn and the institution to manage and provide

the necessary equipment and tools for teaching and learning. Not all learners are inclined to learn formally based on their individual manner of acquiring and processing knowledge. Dib [19] argues that.

The setting-up of a formal education system does not consider the students' standards, values and attitudes that are relevant to the education system which, generally, is not tested or assessed at the level of student acceptance, as well as for efficacy and efficiency.

Acquiring skills and knowledge through this type of education is important to learners who find the formal environment suitable.

7.2 Informal

Learners learn under informal social activities and there are no formal teachers. Infact, everyone is a teacher to teach when possible through interactions. Learners learn from each other during the informal social interactions between themselves and between other people. There is no need for a formal institution like a school or university. Instead, any environment conducive to teaching and learning maybe used. Tudor [20] points out that informal education "…is not deliberately organized to ensure student's learning. The learner often does so unintentionally". It may include reading magazines, watching movies, reading newspapers, theatre projects amongst others. This type of education is most suitable for the majority of learners and it is employed to everyday activities.

7.3 Non-formal education

Tudor [20] states that non-formal education "…is intentional, the person attending these forms of education makes it for own reasons, and programs are organized for learning, coming to complement, support or as a source of valorisation of the learning experiences formally acquired". This is a teaching and learning process that normally takes place outside of the normal school, university or formal institution. An example will include a community gospel choir, theatre project, sports, etc. Based on the community set up in most South African sub-urban, urban and rural areas, non-formal education plays a critical role because this is where many community members get to learn and acquire the necessary basic skills and knowledge that will be used in future to change life for the better. Usually there is no joining fee or registration fee required for this type of education. When the joining fee or registration fee is required, it is usually minimal and accessible. This is where community members will learn, acquire, apply and develop their basic skills.

8. Ever-changing needs

South Africa has been an official global member after the first democratic election in 1994. This meant that South Africa is now competing on a global standard and should strive to meet these global standards through social, political and economic activities. South Africa is classified as one of the developing countries of the world based on its socio-economic and political activities. Fast forward to 2015, South Africa was part of the world countries that agreed and signed for 17 Sustainable Development Goals (SDGs) as a plan for a better life around 2030 [1]. The SDGs came after the Millennium Developmental Goals (MDGs) which ended at the end of 2016 [21]. This is because of the ever-changing global needs. Since there is a constant and continuous change of global needs, human development in terms of education must also change in order to meet these ever-changing needs.

All members of the globe should have a healthy competition in order to meet their country's political, social and economic needs.

There is an increasing need to continuously develop teaching strategies, methods and approaches that are culturally relevant in the twenty-first century. In order for this need to be realised, curriculum development must be addressed because it directly influences the classroom everyday teaching and learning. South African education has gone through several curriculum changes because of the curriculum that is not culturally relevant to have a positive impact on everyday teaching and learning that is culturally relevant. The school curriculum was changed from Curriculum 2005 (C2005) to the Revised National Curriculum Statement (RNCS), then to Outcomes Based Education (OBE) and lastly to the Curriculum and Assessment Policy Statement (CAPS) within 24 years in democracy [3]. Luckett [22] posits that the curriculum must be based on social justice, which will only be inclusive if it is informed by the experiences of black people.

Since culture is not stagnant but evolves, curriculum should also be aligned to the evolution of culture in order to address the needs of the people. There are two core principles that guide black peoples' culture in South Africa, namely human dignity and respect. Culturally relevant teaching should include these principles which can be incorporated into everyday teaching and learning by teachers as curriculum agents in their classrooms.

Therefore, a teaching strategy that will be informed by respect and human dignity is important in influencing a positive change towards the most needed quality education in South African education [12].

9. Curriculum as core business for education

Curriculum is the heart of any educational system and it based on culture of people it aims to develop in order to address their everyday societal needs. Idang [23] defines culture as "language, dressing, music, work, arts, religion, dancing, social norms, taboos and values" of people within a specific community. On the other hand, for Bello [24] it is the totality of the way of life evolved by a people in their attempts to meet the challenge of living in their environment, which gives order and meaning to their social, political, economic, aesthetic and religious norms thus distinguishing a people from their neighbours.

Therefore, culture is a way of life for the people based on their socio-economic and political activities that are influenced by their language, religion, values and the environment they are living in. The school curriculum should incorporate the culture of the people it is intending to develop in order to address their socio-economic and political needs. It is also important to realise that the effective implementation of the curriculum largely depends on the teachers as curriculum agents [25]. Yin, Lee and Wang [26] emphasise this point by indicating that teachers play an important role in the curriculum delivery. On the other hand, Skosana and Monyai [27] posit that those teachers should propel the curriculum implementation as much as possible. In order for teachers to play an effective meaningful role in the implementation of the curriculum, they need to feel equipped [28]. If culture becomes the backbone of the school curriculum, it will inform the everyday teaching activities of the teacher in the classroom. According to Bâlc [29] culture is "thinking, feeling and manifestations acquired through life".

In addition, Barnouw [30] defines culture as "...a whole complex of knowledge, beliefs, art, legislation, morals, customs, and capacities and skills acquired by a person by identifying him as a member of a particular society". Thus culture encompasses a way of life that is influenced by the environment that people live in

and it provides an identity for different communities. Clearly, for decades the South African education curriculum was not based on black peoples' culture, or failed to take their culture into consideration – that kind of education did not address their needs, because it was not informed by their way of life. Any curriculum that does not include people's culture will fail to address the everyday life challenges they face. Current shortfalls in the curriculum do not make provision for the classroom challenges teachers experience – they need a relevant curriculum to be developed by policymakers, before it is implemented as part of their teacher training [31].

This chapter is advocating for a culturally relevant teaching that should be informed by the culture of the people it intends to develop in the twenty-first century. Curriculum is taking a centre stage in this regard because it is the vehicle to deliver the classroom lesson content. Lord Macaulays' [32] address to the British parliament clearly indicates the attack that caused the damage to black people, specifically through culture as a lifeline for education. This is done by not considering the culture of black people that education is attempting to develop for a better life [32]:

> *"I have travelled across the length and breadth of India and I have not seen any one person who is a beggar, who is a thief such wealth I have seen in this country. Such high moral values, people of such caliber, that I do not think that we would ever conquer this country. Unless we break the very backbone of this nation, which is her spiritual and cultural heritage and therefore, I propose that we replace her old and ancient education system, her culture, for if the Africans think that all that is foreign and English is good and greater than their own, they will lose their selfesteem, their native culture and they will become what we want them, a truly dominated nation".*

Culture is the backbone of any nation and the educational curriculum must be based on it for effective culturally relevant teaching to be realised.

10. Conclusion

The literature suggest that the curriculum for the South African education was distorted by not considering the black peoples' culture as its backbone. The following points were discussed in this chapter and they assisted the researcher to make relevant conclusions on CRT: (a) Bantu education; (b) curriculum as a core business for teaching; (c) African Traditional Education; (d) Western type of education; (e) the ever changing needs; and (f) relevant adult teaching and learning. The Curriculum did not and still does not take into consideration the culture of black people. Thus the curriculum, teaching methods including teaching and learning activities are not relevant to the majority of learners in South African education. The present school curriculum is not relevant in addressing the needs of the majority of learners which is negatively affecting the everyday teaching and learning based on its lack to consider black peoples' culture. South African education would realise CRT should policymakers and the curriculum agents take into account the culture of black people in order for education to holistically develop them. This will be one of the contributing factors in positively influencing the process of realising quality education in South Africa as SDG number four.

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Professional Development as a Panacea for Lively Classrooms in South Africa: Experiences of Life Sciences Teachers in the Bojanala District (North West Province)

Florah Moleko Teane

Abstract

This chapter focuses on how the professional development of teachers influences the teaching and learning process in schools. In the chapter, the experiences of Bojanala East District (North West Province) Life Sciences teachers with regard to the professional development support they received from the Department of Education and Training are explored. Subsequent to 1994, South African Life Sciences teachers were subjected to a plethora of educational policy reforms, all of which affected the content of and the teaching approach to Life Sciences as a subject. In all these reforms, the Department of Basic Education organised professional development workshops as an in-service teacher training (ITT) to empower teachers in respect of the new policies. The study sheds light on whether or not the training (according to teachers) enhanced the teaching and learning processes in the classrooms. A qualitative research approach was used in the study and a purposeful sampling technique was employed to select participants. The researcher used one-on-one interviews and a single focus group to collect data. Drawing on the findings of this study and on support uncovered in the literature, indications are that the in-service training programmes left teachers incompetent in terms of dealing with both the new approach and the new content due to the programmes not addressing teachers' needs.

Keywords: classroom management, in-service training, life sciences, professional development, teachers, teaching and learning

1. Introduction

One of the causes of disruptive behaviours in South African schools is that these schools might be failing in their task as set out in the policy documents [1]. In a Life Sciences classroom, one of the causes of such behaviours could be the disparity between the content dictated by the science curriculum and questions that preoccupy students [2]. Of equal importance is how teachers themselves implement such a curriculum, because the way in which teachers understand and make sense of a curriculum affects enactment [3]. Thus, for the teaching and learning environment

to cater for the changing needs of a new cohort of learners, teachers are required to have specialised knowledge and skills [4] in order to impart knowledge to learners. In the South African context, a plethora of policies was issued after 1994, one after another, in an attempt to deal with the legacies left by the apartheid regime. The Life Sciences subject, in particular, fell under four consecutive policies, namely the Interim Core syllabus (ICS) in 1996, the National Curriculum Statement (NCS) in 2006, the New Content Framework (NCF) in 2009, and the Curriculum Assessment and Policy Statement (CAPS) in 2012. A top-down approach was adopted in the development of such curriculum policies and, in some instances, teacher formations were not included in the decision-making bodies dealing with the new curriculum policies [5]. The absence of teachers' voices from the educational reforms noted here disconnected teachers from everyday reality and made them the consumers of theories and approaches – this rather than allowing them to become autonomous beings able to reflect on their own teaching beliefs and practices. Thorough teacher training was, therefore, necessary to enable teachers to apply knowledge and lead activities in the classroom effectively [6]. Returning specifically to the topic of this chapter, the majority of teachers in the Bojanala District lacked the necessary know-how to fulfil their task. The above statement is in line with the assertion made by [7, 8] that, when teachers use instructional materials based on reform-oriented ideas that they are not familiar with, they can end up paying attention to superficial aspects rather than to core ideas.

The study focuses on the use of professional development in the form of ITT to capacitate teachers to enhance professional competency, which, in turn, should lead to improved learner performance. During the currency of each of the four South African educational policies named above, teachers attended a three-day workshop at which they received training in the new curriculum policy. Since many educational reforms were issued within a short period, teachers were forever being faced with the challenge of having to deal with new approaches, methodologies, and content, a state of affairs that was bound to cause them stress. For an example, a move from a content-based curriculum to an outcomes-based curriculum policy represented, according to [9], a move to the most ambitious curriculum policy since the installation of the Government of National Unity. With the implementation of an outcomes-based curriculum, no content was specified and every teacher thus taught what he/she deemed necessary to attain the desired outcomes. The study by [9] in KwaZulu-Natal indicated that different teachers taught different things in the same grade. In order to reduce confusion and to improve implementation, the Department of Basic Education planned workshops to empower teachers in respect of all the new policies. Subject advisors were the only people that presented such teacher training, which lasted for only 3 days regardless of whether the full scope was covered or not. These subject advisers now serving as trainers) they received only a three-day workshop by way of training—exactly as the teachers did. This short training period meant that the trainers had gaps in their knowledge and that these gaps were transferred to the trainees and then on to the learners [10]. Indicates that even experienced educators have incomplete and fragmented knowledge of the content they teach, signalling that they too need ITT.

Sufficient ITT is necessary if learner performance is to be improved. This is illustrated in the study conducted by [11], which showed that professionalism – the effective use of "know-how", and "know-what" according to situational requirements [12] – was lacking in teachers because they were without certain skills necessary to meet the challenges of a rapidly changing cohorts of learners. It is thus shown that a successful teaching and learning environment requires job-embedded professional development [13] which addresses the needs, concerns, and interests of teachers.

2. Theoretical framework

The paper explores teachers' views on the role of professional development in enhancing the teaching and learning process. Hein's Constructivist Learning Theory [14] therefore underpins it because this is a theory associated with pedagogic approaches that promote active learning. Hein's theory runs counter to the traditional methods of teaching and learning whereby curriculum designers and teachers, as implementers of the curriculum, dictate their pedagogic views. He propagates the idea of a teacher as a facilitator of learning who provides an environment where learners freely carry out their own mental actions. In other words, teachers must provide learners with the opportunity to construct their own world. Teachers are therefore responsible for planning learning activities and methods that engage learners' minds. Professional development programmes must address teachers' needs, such as by guiding them in planning the learning activities and empowering them in respect of different teaching methods to cater for individual learner needs. One of the methods suggested by Hein for learning is the so-called "learning by doing" – that is, hands-on activities that enable learners to be active rather than passively accepting knowledge given to them.

According to Hein, our learning is a social activity; it is intimately associated with our connection with other human beings. Social interaction with other people promotes meaningful learning, what [15] call collaborative elaboration. Social interaction can be enhanced when ITT allows teachers to discuss issues among themselves and teachers themselves can use the same technique by grouping learners and allowing free discussion to take place.

To enhance the process of teaching and learning, knowledge should be discovered as an integrated whole. Instructors are therefore required to plan learning activities by first introducing basic ideas concerning the topic or subject and then, later, revisiting and building upon them. According to Hein, it is not possible to assimilate new knowledge without having some structure developed from previous knowledge to build upon. Any new information introduced, either by curriculum designers or teachers during their teaching, must be connected to the previous information because learning should be discovered as an integrated whole [16]. Ref. [14] indicated the influence of learners' background knowledge in the teaching and learning situation by declaring that learning is contextual. Thus, every learner must be treated as an individual and any effort to teach must be connected to the state of the learner. Due to the differences between the unique cohorts of learners they are faced with yearly, teachers are expected to adapt their teaching methods and approach each time to suit a specific group of learners.

Hein also indicates that learning is not instantaneous. It takes time to learn, so in order for one to master the activities to be learned, one needs to revisit the activities concerned repeatedly, to think about them and to apply them. Therefore, a continuous professional development programme instead of a once-off activity is far more likely to make mastery of a new policy possible. In the same way, teachers must find methods to enhance learners' mastery of new content, again because this is a process that requires a measure of time.

This theory has profound implications for making South African classrooms lively because it unpacks strategies intended to enhance the teaching and learning process. What is key in education is to see learners as the centre of teaching and learning process and teachers as facilitators of learning. For teachers to be the best facilitators, professional development programmes need to address their specific needs, not merely deal with general matters.

3. Literature review

3.1 In-service teacher training and teachers' development and growth

ITT is supplementary training for teachers who are already in service [17]. Such teacher training is necessary because of educational reforms that are informed by changes in the world, as well as by the presence of different cohorts of learners, some of whom have special needs. Teachers are faced with challenges in implementing such reforms because, most of the time, they lack the knowledge and skills [18] necessary to deal with the new approaches and content required. These educational reforms warrant additional teacher training and the improved quality of instruction that follows. Professional development in the form of ITT may help teachers to deal with these changes by enhancing their professional competence and professional satisfaction [17]. The importance of professional development is widely documented in literature, as is the fact that such professional development is needed not only when a new policy is introduced – rather, it must be a continuous activity that improves and increases teachers' knowledge of the subjects they teach [18–20]. When teachers' knowledge is increased, this translates into improved learner performance [18].

Professional development activities come in the form of a number of interrelated activities such as workshops, local and national conferences, college courses, and interventions offered by special institutes. Traditional professional development programmes operated for fewer days than the current ones [21] and were criticised for not increasing teacher-reported growth in knowledge or skills, and for not bringing about changes in teaching [21]. According to these authors, because of the inappropriate duration of the professional development programmes offered to teachers, the challenges raised by the introduced reforms were not met and the programmes were ineffective because such professional development programmes focused only on teaching techniques without emphasising the content. Effective professional development activities are those that are sustained, ongoing and intensive [22]. In Riverside, Washington, for example, staff development focused on a 10-year effort to overhaul the elementary science curriculum and the district teachers attended 30-hour classes at a local university [21]. Elsewhere in the USA, professional development programmes designed included having teachers working with experts as mentors at schools and teachers attending development classes while in service [22]. Longer ITTs tend to have more content focus, more active learning activities and more coherence [21].

3.2 Professional development activities that enhance learner performance

Traditional professional development programmes dictate what teachers need to do, irrespective of the different working environments that they face. Teachers thus experience challenges in applying what they learn during ITT [17]. Professional development programmes must, therefore, provide opportunities for teachers' intellectual and professional growth [23]. Unlike traditional in-service training that is considered to be general [17] and taught in one-shot ITT interventions [24], recent literature advocates for moving away from training that is highly theoretical towards training in which teachers are actively involved [17].

Research provided evidence that active participation by teachers is an essential component of high-quality professional development [19, 21, 25]. According to [26], collaborative continuing professional development leads to greater confidence among teachers, greater commitment to changing practice, increased willingness to try new things, and an enhanced knowledge practice. Collective

participation enables teachers to discuss concepts and problems emanating from the training and contributes to a shared culture [21] as part of which teachers may plan lessons together. Effective ITT must focus on deepening teachers' content knowledge by improving and increasing their subject knowledge. In addition to empowering teachers on content, organisers of ITT must include in their plan instructional methods that will enhance the teaching and learning process. Instructional methods such as direct observation of teaching by experts or the use of online videos of lessons taught by expert teachers [27] are normally referred to as coaching and modelling. These methods have been shown to have made significantly more changes in teachers' way of imparting knowledge [28] than have other methods.

ITT programmes that put learners at the centre yield good results. Collaborative discussions that connect teachers with learners require much time for inquiry, reflection, and experimentation [21]. Thus, effective ITT interventions are those that are prolonged, continuous and intensive because. According to [24], teachers forget 90% of what is taught in a once-off ITT programme. Subject advisors, therefore, bear a responsibility to provide continuous support to teachers at schools in order to enable them to master each new policy. Each teacher's ability to master a newly implemented reform depends also on the provision of resources by school leadership, and this calls for the proper funding of ITT programmes. Since most ITT programmes are top-down initiatives, the role that teachers play in making the reforms successful is underestimated. Policy decisions that place teachers at the heart of any innovation [24] will inform well-planned ITT because teachers know their learners' needs.

4. Methodology

This study is based on the interpretivism and constructivism research philosophy which, according to [29], are multiple realities or truths based on an investigator's construction of reality. This study is interpretive because it is guided by a set of beliefs and feelings about the world and how it should be understood and studied [30]. The researcher sought information about the experiences of Life Sciences teachers in respect of the support they received from the Department of Education through professional development. Through the provision of a set of complex interpretive practices (using more than one methodological practice), the researcher set out to construct knowledge through lived experience and through the researcher's interaction with teachers [30]. In this research, a qualitative research design was employed, focusing on participants' perspectives and experiences, and utilised tacit knowledge, intuitive and felt knowledge [31]. Since the aim of the study was to discern how Life Sciences teachers experienced ITT, a case study became the best approach for this research because its main aim is to provide an in-depth description of a small number of cases [32].

4.1 Sample

The population of the study was comprised of Life Sciences teachers (about 300) in the Bojanala District in the Northwest Province. Most of the schools in the district are in rural areas and, of the 96 schools having Life Sciences as one of their subjects, only about 35 are former model C schools with facilities to provide a conducive teaching and learning environment. In this study, the researcher used a purposeful sampling method to select 33 Life Sciences teachers. Ref. [33] states that "the logic and power of purposeful sampling lies in selecting information-rich

cases for in-depth studying". Only teachers who experienced the aforementioned policy changes participated in the study. Of the 33 participants, 19 were females and 14 were males because only participants who were willing to partake in the study were used. Owing to the fact that the majority of the participants were teachers who taught in rural schools, of the 33 participants, only one was white and one was Indian. All the participants held a diploma in teaching with Life Sciences as their major subject. Eighteen of the participants held a bachelor's degree while only two held an honours degree.

The researcher applied the ethical clearance process of informed consent, as well as ensuring privacy and confidentiality. Participants were informed about the nature and consequences of the research and their confidentiality was assured as the primary safeguard against unwanted exposure [30]. All participants signed a consent form, but they were also made aware that they had the right to withdraw from the study at any given point.

4.2 Data collection strategies

Two focus groups and 20 one-to-one interviews were employed to collect data. A semi-structured interview strategy was used in the face-to-face, one-on-one interviews and in the two focus groups because this technique allows the researcher to ask probing questions to explore in more detail what participants share [34, 35]. The interview questionnaire developed consisted of a list of open-ended questions that included follow-ups. The two focus groups consisted of six and seven members respectively.

4.3 Data analysis

The researcher engaged in thematic analysis of data using the Saldana method of qualitative analysis. Firstly, data were broken down into codes. Saldaña [36] describes coding as the "critical link" between data collection and their explanation of the meaning. Coding was thus done through the identification of patterns which demonstrated habits, salience, and importance in people's daily lives. Data were then categorised by grouping, reorganising and linking the codes in order to consolidate meaning. Finally, themes emerged from such categories and were used to discuss the findings of this research.

4.4 Research questions

The aim of the research is to discuss experiences of Life Sciences teachers regarding professional development activities that enhance learner participation in classrooms. The research question was thus:
What are the experiences of the Bojanala District Life Sciences teachers regarding the role played by professional development Programmes in enhancing the teaching and learning process?

4.5 Sub-questions

- Which ITT programmes did the Department of Education provide to empower teachers?

- How did these programmes contribute towards making the classrooms lively?

- What are teachers' requirements as far as ITT is concerned?

5. Findings

5.1 Life sciences professional support forum (PSF) meetings and teacher development

All participants declared that they attended workshops and meetings called Professional Support Forums (PSF). During the PSFs, which took place bi-monthly, Life Sciences subject advisors determined issues to be discussed. Due to the number of issues that must be tackled in such meetings, there is often no room for an "any other business" (AOB) agenda item that would allow teachers to raise additional matters. Even though the PSF's provide a good platform for discussion of challenges an individual teacher faces, teachers are unable to do so because subject advisors always have much to share with the teachers.

Participant A said: *we normally receive a circular from the district office inviting us for a meeting (PSF). Very often, we are denied the opportunity to add some crucial issues that affect the teaching and learning process in the agenda, e.g. my school has no laboratory and library so it is impossible for me to perform Life -Sciences experiments.*

The PSF's were used for various purposes – for example, they were used to find out how far individual teachers' were in their work schedules and in respect of the pacesetter for Life Sciences in different grades (Grade 10–12). They were also used to report on learners' performance. In such cases, a subject advisor would use a data projector to display the quarterly analysis of Life Sciences results in Grade 10–12. From there, subject advisors would request teachers to come up with intervention mechanisms and it would be these mechanisms, that the subject advisors would then use as a yardstick against which to measure individual teacher's performance during later school visits.

Participant B commented that, during the PSF's: *Subject advisors allow teachers to come up with ways to improve the implementation of policy and learner performance. During their normal routine of a school visit, subject advisors use those interventions to measure teacher implementation of policy.*

Once per quarter, PSF's were used for moderation of term tasks, namely a practical task and term test where teachers would bring along five learner portfolios for moderation. During the moderation, subject advisors would check whether marking had been done correctly and whether teachers had administered all term tasks.

Participant C said: *teachers themselves do the moderation and actually, no quality moderation is done. Most of the time, another teacher using a green pen makes a tick next to a red pen –so no quality work is done and teachers are not developed in this regard.*

5.2 Teacher workshops as ITT

Apart from the PSFs, ITT was provided in the form of workshops, though teachers declared that this did not happen frequently. Unlike the PSFs, which took place bi-monthly according to participants, only one or two workshops, were held annually. Only workshops that were used for empowerment in respect of a new reform took place over 3 days, while most other workshops were planned for 1 day, in this respect, just like the PSF's. Participants indicated that these workshops seldom met teachers' needs, because even though they were called content-gap workshops, subject advisors decided which content to empower teachers on.

Participant D said: *my subject advisor repeats one topic year in year out. There are new topics like evolution that we wish to be empowered on, but to no avail. It will be more beneficial to teachers when subject advisors inquire from them, which topics are problematic. Life sciences have new topics, which are new to me, I received no training in such topics during my college years. How I wish that our workshops can empower us on such topics, for example, evolution.*

Participants also indicated that the content-gap workshops became a one-man show because only the subject advisor was actively involved in imparting the information while teachers were a passive recipient of knowledge.

Participant E commented: *attending these content-gap workshops is as good as reading the textbook itself because there is nothing new, that the facilitator adds to the information in the book. Even after the workshop, I still do not understand the topic discussed, so even when the facilitator asks for questions, I am unable to ask questions because I did not understand anything.*

Participants indicated that the Advanced Certificate in Education (ACE) course that the Department of Education had introduced to help Life Sciences teachers in dealing with policy changes did not scratch the surface because the facilitators were concerned only with teaching methodology. The policy changes discussed above came with the introduction of new content, some of which teachers had not been trained on during their teacher training courses – for example, evolution. Most of the educators registered for the ACE course with the hope that it would empower them on such topics, but this hope proved to be in vain.

Participant F said: *the ACE course was predominantly about teaching methodology, not content. In schools without resources, it was impossible to apply such methods. What was worse is that the facilitators were Afrikaans speaking people who sometimes struggled to get proper English words to explain Life Sciences concepts.*

5.3 The contribution of professional development programmes to learner performance

Participants declared that most of the activities taking place during the ITT were not benefitting them or the learners. Some of the participants indicated that they liked the workshops because they used them as opportunities to interact with other teachers during lunchtime.

One participant (F) said: *during lunchtime, we share some good practices and after practicing them, my learners' performance improved. I have realised that teachers have the know-how and they can advise one another.*

According to the participants, the content-gap workshops left teachers unassisted in as far as the new content was concerned because it appeared that the subject advisors themselves lacked sufficient knowledge about what the new policies entailed. Teachers thus took the same fragmented information to the learners, leading to learner passivity during lessons.

Participant G said: *when subject advisors call us for a workshop to empower us on a new policy, they give us many handouts from their own workshops. When we ask questions about the new policy, they usually say they are also trying to get to grips with the new policy and that we must read the handouts.*

Participants also indicated that they experienced challenges with providing a conducive teaching and learning environment because the ITT did not prepare them adequately.

Participant H said: *I struggle to prepare and impart knowledge to learners because I have content-gaps and lack a good approach to teach new topics. My students are always passive and they do not seem to understand.*

6. Discussion

The findings of this research provided evidence that the South African Department of Basic Education (DBE) used PSF's and content-gap workshops to enhance professional competence [17] in teachers during the four policy changes

indicated earlier on. However, these ITT programmes had some shortcomings because they did not address the teachers' needs as envisaged. One reason for the failure of such programmes to address teachers' needs in the South African context was teachers' exclusion from a discussion on some of the innovations introduced in the curriculum [5]. Apart from giving teachers ownership of the innovations, allowing teachers to add their voices during curriculum innovations will inform well-planned ITT because, as posited by [24], teachers know their learners' needs. The exclusion of teachers from discussions about policy innovations left them incapacitated and thus affected their daily teaching and learning processes because they lacked the knowledge and skills [18] to deal with a changing cohort of learners. Since a top-down approach was used to bring about changes in curricula [9], with politicians taking unilateral decisions on what to include and how to do it, such innovations left teachers with fragmented knowledge which professional development programmes also failed to address. When teachers have such fragmented knowledge, they lack the confidence [24] that is needed to make learners active and involved [3]. Lack of understanding of the new knowledge and prescripts of introduced policies led to teachers doing things the way they understood them and not the way they were designed to be done [9]. Thus, teacher confusion was transferred to the learners who responded by being passive during the teaching and learning process.

The duration of ITT contributed to creating teacher knowledge gaps in teachers. Participants alleged that, in respect of each of the policy changes, they had received once-off, three-day content-gap workshops. Unlike in most western countries where teacher training period is prolonged, and hence involves more content focus [21], participants declared that, after the ITT, they remained "empty" in as far as the new content and skills were concerned. This attests to what [24] said about teacher professional development, namely that teachers forget 90% of what is taught in a once-off ITT programme. For South African Life Sciences teachers to master the skills and knowledge of the new policies, they needed more than one content-gap workshop. According to [14], in constructivist learning theory it takes time to master a particular activity or knowledge. Participants indicated that, because of lack of sufficient time, they were denied the opportunity for collaborative elaboration [15] where they would have been able to share good practices – something that these teachers said was most beneficial to them. If teachers had been afforded the opportunity to share information in instances where they lacked certain resources (as was said by one participant), they could have been advised on how to improvise. Justice was not done to the new policies because participants indicated that the trainers (subject advisors) followed the traditional methods of delivering professional development, focussing more on theory and generic information [17]. In such ITT programmes, teachers became passive recipients of knowledge because the programmes did not allow them to have social interaction among themselves – something which [17] posited would make them active and able to master the new policy. Participants also indicated that the theory imparted to teachers did not include a discussion of new topics, such as evolution, which did not form part of their teacher training. This made teachers struggle to teach topics that were new to them. One participant also indicated that his subject advisor covered the same particular topic every time when there was a workshop. This sheds light on the fact that the subject advisors themselves have knowledge gaps. According to [14], teachers will, therefore, face a challenge as regards the planning of learning activities and methods able to engage learners' minds because such teachers are not fully empowered.

Participants reported observing knowledge gaps in the facilitators of the ACE certificate course which was meant to empower educators on the Life Sciences

content. To the teachers' dismay, the facilitators taught methodology only and were also not fluent in speaking the English language. This returns our attention to the earlier notion that teachers need to be part of all innovations so that they can determine the ITT activities that will be beneficial to them and to the learners. The ACE certificate course which served as a professional development intervention did not solve the content-gap problem because it did not so much as scratch the surface in as far as equipping teachers with the "know-how" and "know what" [12] was concerned. Teaching methodology without aligning it with a particular topic where, for example, teachers are allowed to develop lesson plans and do demonstration lessons or observe lessons, became a futile exercise. However, when teachers work as a collective to develop lesson plans and activities, they are more able to create a conducive teaching and learning environment.

The Life Sciences classrooms referred to in this study were thus not lively because teachers lacked the skills and knowledge to deal with learners of different cognitive levels and backgrounds. Learning was not contextual [14] in the sense that there was no individual attention, and this led to poor learner performance.

7. Recommendations

Based on the experience gained during this study, the following recommendations to education stakeholders are suggested:

- Teachers should play a pivotal role in determining policy innovations because they know the needs of learners.

- ITT programmes should not be a once-off activity, but a continuous process, which would allow teachers to gain additional insight into the new policies.

- Teachers should be the ones who decide on their own training needs and how they must be trained. Subject advisors must collaborate with teachers to select workshop activities and material.

- The professional development of teachers must focus on addressing content gaps and relevant teaching methods.

- During such training, teachers must be actively involved in designing lesson plans and must engage in demonstration lessons to empower one another.

8. Conclusion

The study has sheds light on the shortcomings of the professional development programmes provided by the South African Department of Basic Education. From the findings, it appeared that the in-service training of teachers, which focused on, equipping them with the necessary knowledge and skills to deal with a plethora of educational reforms, did not address teachers' needs. Even after interventions by the Department of Basic Education, teachers had gaps in their content knowledge which prevented them from creating a conducive teaching and learning environment. Lack of content knowledge prevented teachers from designing activities or tasks that would be learner-centred and thus would allow learners to be actively involved in their classes. Learners were thus passive, and this led to poor performance.

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The Changing Landscape of Leadership in Early Childhood Education in China

Dora Ho, Mo Wang and Pan He

Abstract

This chapter aims to offer a theoretical discussion on the changing landscape of leadership and explores the emerging practice of teacher leadership in ECE in China. In 2010, the central government of China introduced several waves of policies relating to teacher professional development to improve and promote the quality of ECE. The global discourses mainly developed in the West have indicated that school leadership plays an important role in promoting teachers' professional development and the quality of education. These discourses have influenced the agenda for educational reform in China as reflected in the recent strategies formulated for the development of school leadership in ECE. Historically, ECE teachers have been viewed as babysitters rather than as educators, and preschool principals have been considered policy implementers and school managers rather than school leaders of innovation and change. This chapter discusses the changing landscape of school leadership in China's ECE and how it is influenced by a hierarchical culture. It is argued that the practices of school leadership have been largely centralised in the hands of preschool principals, alongside of which there has been an emergence of teacher leadership co-exercised with principalship in home-school networks and teaching research groups.

Keywords: China, early childhood education, education policy, leadership, quality education

1. Introduction

Research on the relationship between the quality of early childhood education (ECE) and child outcomes has shown that government policy and management have been important influencing factors [1]. Government support is necessary to ensure high-quality education for young children [2, 3]. The positive impacts arising from government support for better student outcomes include the acquisition of pre-literacy skills [4], improved socio-emotionality [5], academic performance, language skills and classroom behaviour [3]. High-quality ECE has also been proven to benefit the family and society as a whole. In terms of family development, high-quality ECE can raise female employment rates. It can also promote positive parenthood and relieve mothers' stress. In terms of social capital development, the results of the Perry Preschool Project indicated that the rate of return on investment for ECE is 1:7.16 by the time a child reaches 27 years of age [6]. With growing

awareness of ECE's importance, the Chinese central government has focused on its development in the past decade [7]. The year 2010 is considered the 'New Spring Time' of ECE. The State Council issued two policy documents: *Compendium for China's Mid- and Long-Term Education Development (2010–2020)* and *State Council's Several Suggestions Regarding Developing ECE*, both addressing ECE as the foundation of basic education. In these two documents, the central government set out its plans to achieve universal ECE by 2020. As a result, there has been a rapid increase in the number of students enrolled in ECE. In 2009, 51% of children of preschool age were enrolled in ECE. This increased to 80% in 2017. As a result of concern over the rapidly growing number of pre-schoolers, researchers have urged the central government to pay attention to the impact of the implementation of universal ECE on the overall quality of ECE [8, 9]. Since 2010, most local governments have initiated comprehensive reforms for ECE by establishing political authorities, increasing financial input, and supporting teacher training programmes [10]. Among these reforms, the teacher professional development policy has been widely considered to be the key factor in promoting the quality of ECE [11]. Under the policy, teachers are regarded as catalysts for educational reform [12] and the guardians of sustainable development in schools [13]. In particular, the notion of teacher leadership in promoting teachers' professional development has received considerable attention [14–19]. However, under the influence of a hierarchical culture in China, ECE leadership is largely centralised in the hands of preschool principals. There have thus been questions about how teachers can take on leadership roles in school change and development as advocated by the central government. This chapter aims to offer a theoretical discussion on the changing landscape of leadership and explores the emerging practice of teacher leadership in ECE in China.

2. Early childhood education in China

Since the late 1970s, China has engaged in an open-door policy to reform its economic system. The central government has regarded education as a force driving China to prosper, enhancing its national strength. As a result, ECE has been one of the priorities of the reform agenda. ECE in China broadly refers to the care and education of children from birth to 6 years old [20]. Preschool refers to ECE institutions that are run by different service providers. There are two main types of preschool: government and non-government organisations. In terms of school governance, all preschools in China are macro-controlled by the central government and micro-regulated by the local government of each province.

2.1 The governance of ECE

In 1978, the central government established the Department of ECE and Special Education in the General Education Division [21], signifying the beginning of the comprehensive reform of ECE. In 1979, the State Council established the 'Leading Children's Caring Work Team ECE', consisting of teams from 13 departments, including the Ministry of Education (MOE), Ministry of Health, Ministry of Labour and Social Security and the Federation of Trade Unions [22]. Local governments, including provincial governments, city governments and the governments of the autonomous regions, followed the policy of the central government and set up ECE departments to govern and lead local preschools. In the same year, the MOE (1979) published *Urban Preschool Work Regulations* to guide local governments' work on ECE. In 1985, a policy document, *Decision of the Central Committee of the Communist Party of China on the Reform of Education System* was issued [23]. In the

document, the central government stated that authority and power had been given to local governments to regulate ECE in their own provinces and it gave autonomy to preschool principals for school-based management and innovation. To decentralise school governance, the central government issued a series of policy documents to provide guidance for ECE institutions. These policy documents covered areas such as the distribution of autonomy to principals, the development agendas for ECE, improvement of teachers' professional development and financial subsidies to preschools and children.

Since 1989, the management system of Chinese preschools has fallen under the domain of the *Preschool Director's Responsibility* [24]. Under this system, preschool principals are responsible for handling all vital concerns and decisions, such as the school's mission, training schemes and teacher employment; teachers rarely take on leadership roles. In China, the organisational structure of a preschool is generally hierarchical [25]. Liu described the typical organisational structure in China [26] (see **Figure 1**).

In general, the principal has the central administrative and managerial power to operate the preschool. The principal is the legal representative of the preschool and the chief administrative officer, empowered by law to exercise decision-making, administrative command, human resource management and financial management [27]. Since 1989, the principal's responsibilities have changed from passively managing the preschool to actively directing it. Preschools have shifted from being externally controlled by the central and local governments to being internally controlled by the principal. Autonomy has been given to the principals for school-based management, and they are also accountable for the quality of the service provision. As a result, there has been a quest by principals to learn how to exercise their power and authority to lead daily operations within a decentralised system.
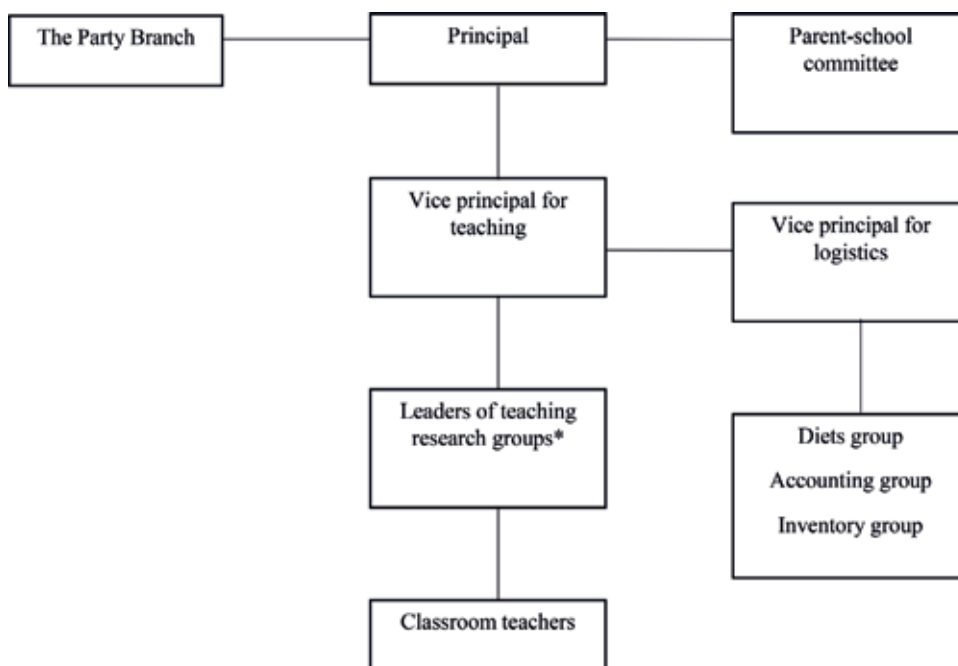

Figure 1.
The typical organisational structure of a preschool in China (Liu, 2015; [26]). (A teaching research group (TRG) is a type of a professional learning community in a preschool that provides a platform for teachers to work together on curriculum innovation and pedagogy.*

2.2 Teacher professional development policy

Before 1976, only one institution offered teacher education programmes: Nanjing Normal College (renamed Nanjing Normal University). In 1978, the MOE published the *Opinions on Strengthening and Developing Teacher Education* to require teacher education colleges and universities to establish ECE departments and increase their student intake. In 1980, the MOE issued two policy documents, the *Opinions on Operating Secondary Normal Education* and the *Teaching Plans of Early Childhood Normal Education.* These reiterated the importance of professional education for preschool teachers. As a result, the number of teacher education institutions providing preschool teacher education programmes increased from 1 in 1978 to 21 in 1980. In 1982, the State Council presented the *Government Work Report* to the National People's Congress (NPC), highlighting the importance of ECE development as the top priority. Improving the quality of preschool teacher education programmes offered by those institutions was identified as a strategy for developing ECE. In 1988, the MOE issued the *Opinions on the Further Development of Programmes of Preschool Teachers in Vocational Secondary Schools.* In this document, the government highlighted the importance of teacher education and professional development and stipulated the eligibility requirements for offering preschool teacher training programmes, the specifications for programme structure and content and student enrolment. In 1995, the MOE issued the *Teaching Project for Three-year Programme of Secondary Preschool Teacher Normal Education*. In this document, the government provided the objectives and curriculum models for preschool teacher education. The next year, the MOE (1996) issued *Some Opinions on the Reform and Development of Teacher Education* [28]. In 2003, the State Council issued *Guides of the Reform and Development of Early Childhood Education.* In the latter two documents, the central government stated that preschool teacher education needed to be reformed and suggested that preschool teachers should receive both formal and informal teacher education.

Since 2010, teacher education policies have focused on improving teachers' professional development. Through teacher education, teachers have been equipped with professional knowledge, skills and attitude [29], which has contributed to improving the quality of ECE [30, 31]. There have been three types of training programme: short-term concentrated training, job-transfer training and backbone teacher[1] exchange off-job training. By 2013, a total of 310,000 preschool teachers had participated in these programmes. To further enhance teacher professional development and the quality of ECE, two policy documents, *Preschool Teachers' Professional Standards* (PTPS) and the *Guide for 3–6-Year-Old Children's Learning and Development* (GCLD) were issued by the MOE in 2012. The PTPS highlighted three basic concepts: child-focused teacher ethics, the ability for heavy learning and lifelong learning. There were also three frames of essential content: professional, philosophical and ethical; professional knowledge; and professional competencies. The GCLD aimed to provide preschool teachers with a better understanding of the basic characteristics and milestones of child development. Conforming to the regulations of *The Guidance of ECE (trial version)* issued in 2001, the GCLD divided the content of ECE into five subject areas: health, science, society, language and art. In addition, it provided 87 guidelines on good child-rearing practices for preschool teachers and parents to reference. The GCLD was influenced by Western theories, namely child-centredness, learning through play, school self-evaluation and school-based management. However, these Western theories would have to be

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[1] The term 'backbone teachers' refers to those teachers whose performance in teaching and peer professional support is considered excellent in the eyes of other teaching staff.

critically reviewed before they could be successfully adapted to the preschools in China [32–34].

Similarly influenced by Western ideologies on teachers as change agents, developing teacher leadership has recently been recognised as one of the key reform initiatives needed to improve educational quality. In this regard, the MOE issued two policy documents in 2012: *Preschool Teachers' Professional Standards* and *Preschool Job Directive Rules*. The former highlighted four basic concepts for preschool teachers: a morality-first standard, a child-focused approach, an emphasis on teacher competence and the pursuit of lifelong learning. There were also three frames of essential content: professional philosophy and ethics, professional knowledge and professional competencies. The latter addressed the roles of preschool teachers in seven domains: (a) establishing a learning environment, (b) organising and caring for children, (c) support and guidance during play activities, (d) planning and implementation of education activities, (e) evaluation and motivation, (f) communication and collaboration and (g) reflection and development. The *Preschool Job Directive Rules* issued in 2016 highlighted the roles of preschool teachers as follows: (a) providing and implementing an education work plan, (b) establishing the learning environment, (c) guiding and cooperating with childcare workers, (d) keeping in touch with parents, (e) participating in vocational study and research activities on care and education and (f) evaluating the outcomes of child care and education.

The reform initiatives have revealed that although preschool teachers in China have been expected to take on various leadership roles, they have remained confined to classroom teaching. Research has also shown that teachers who assume that leadership roles have a higher level of professionalism are willing to take on roles in promoting curriculum innovation, student learning and organisational development [35]. Therefore, it is imperative that preschool principals empower teachers to take on leadership roles outside the classroom.

2.3 The ECE teaching force

Sustaining ECE in China is dependent on effective management systems, sufficient financial inputs and the quantity and quality of professionally trained teachers [36]. However, there have been issues with the management systems of local governments, including ill-defined functions and responsibilities, mismatched personnel allocation and insufficient financial inputs [37]. In addition, the weak professional identity and the low social status of teachers negatively influence the development of the ECE teaching force in China [38].

Another issue is China's shortage of preschool teachers, which is a major challenge to ECE development. **Figure 2** shows that the number of teachers increased from 1,315,634 in 2011 to 2,432,138 in 2017, and the teacher-child ratio gradually improved from 1:26 to 1:19 (**Figure 3**). Nonetheless, a severe shortage of preschool teachers is predicted over the next few years. According to the *Compendium for China's Mid- and Long-Term Education Development (2010–2020)*, there will be a 75% increase in the number of preschool-aged children by 2020. An additional 155,200 preschool teachers will be required by then [39]. The new challenge is tied to the *Two-child Policy,* implemented in 2016. Couples are now permitted to have more children and are expected to do so. It is projected that such population growth will have an impact on ECE development. For example, the shortage of ECE teachers is predicted to reach 2.4 million by 2020 [40]. There are several reasons for this, including teachers' low wages, low social status and job insecurity [13]. In the past, this has led to a high attrition rate and wastage among preschool teachers in China. For example, in Beijing, one out of three teachers in private preschools resigns each year [41].
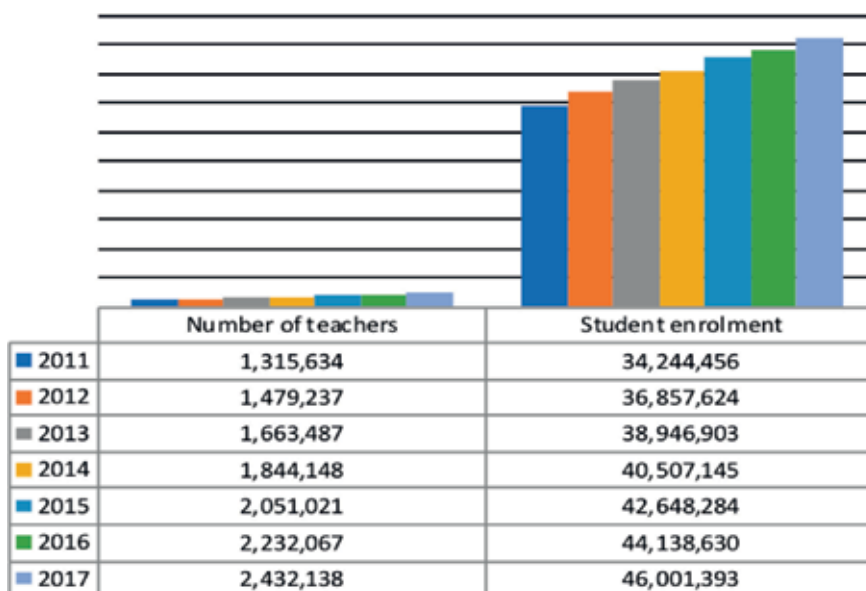
	Number of teachers	Student enrolment
2011	1,315,634	34,244,456
2012	1,479,237	36,857,624
2013	1,663,487	38,946,903
2014	1,844,148	40,507,145
2015	2,051,021	42,648,284
2016	2,232,067	44,138,630
2017	2,432,138	46,001,393

Figure 2.
Number of teachers and student enrolment in 2011–2017.
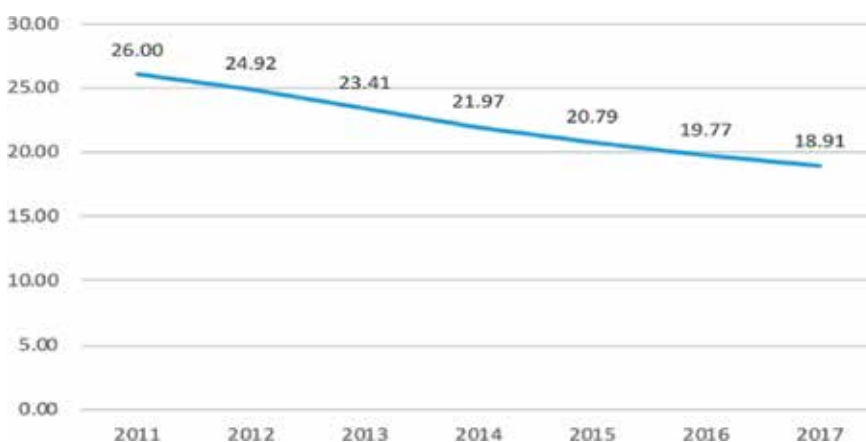
Figure 3.
Preschool teacher-child ratio in 2011–2017.

Due to low professional entry qualifications, preschool teachers' professional status has not been well recognised in China [42]. As shown in **Figure 4**, the rate of educational attainment (for example, an Associate degree or above) gradually increased from 2011 to 2017, but in 2017, only 21% of preschool teachers had obtained an undergraduate degree or above. This may lead to preschool teachers' poor self-image and low level of professionalism [42, 43]. Indeed, teachers in Chinese preschools often consider teaching and taking care of children as their sole function. This perception is rooted in the belief that preschool teachers in China are followers who do not take responsibility for anything other than teaching and caring inside the classroom. However, several previous studies have indicated that teachers play a key role as change agents for school development and improvement [32, 44]. Teachers with a strong professional identity perceive themselves to be effective leaders and active participants in decision-making, and *vice versa* [43]. Freidson stated that professionalism enables teachers to cultivate a sense of self-direction, independence and

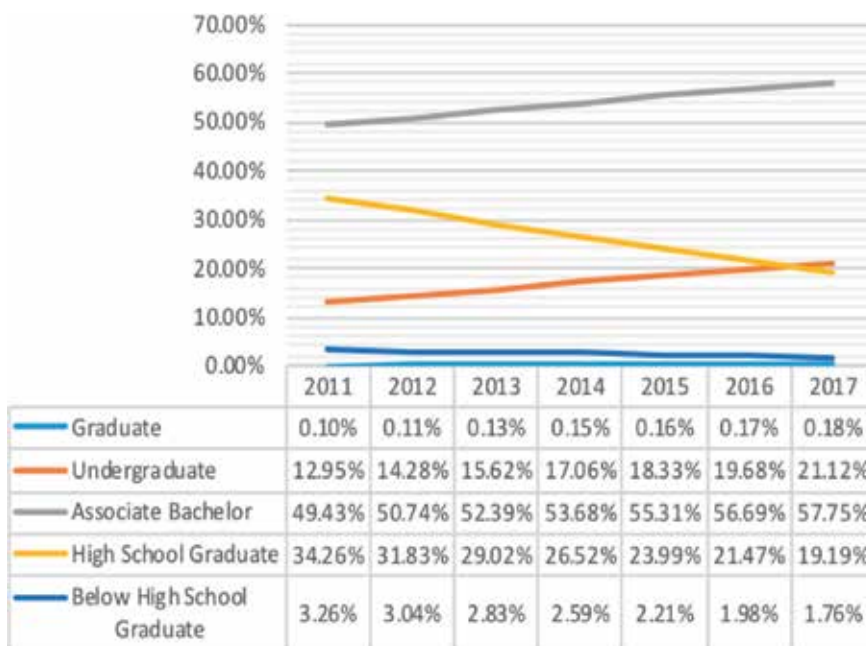|	2011	2012	2013	2014	2015	2016	2017
Graduate	0.10%	0.11%	0.13%	0.15%	0.16%	0.17%	0.18%
Undergraduate	12.95%	14.28%	15.62%	17.06%	18.33%	19.68%	21.12%
Associate Bachelor	49.43%	50.74%	52.39%	53.68%	55.31%	56.69%	57.75%
High School Graduate	34.26%	31.83%	29.02%	26.52%	23.99%	21.47%	19.19%
Below High School Graduate	3.26%	3.04%	2.83%	2.59%	2.21%	1.98%	1.76%

Figure 4.
Educational attainment of ECE teachers in 2011–2017.

autonomy [45]. It is therefore important for the public to openly recognise preschool teachers' professionalism. This is one of the ways teachers could be influenced to assume leadership roles in school development and improvement.

3. Chinese culture

Fan described culture as 'the collection of values, beliefs, behaviours, customs and attitudes that distinguish a society' ([46] p3). Societal culture is a complex and multidimensional concept. It has also been viewed as an important factor influencing leadership practices and how leadership is conceptualised [47].

China is a developing country with 5000 years of history and the largest population in the world. With its long historical development, it is axiomatic that school leadership practices would be affected by Chinese culture. There have been numerous studies on school leadership in the Chinese cultural context. For example, Bush and Qian generalised four types of Chinese culture, representing the different stages of history: traditional culture, socialist culture, enterprise culture and patriarchal culture [48]. Traditional culture is rooted in the pervasive influence of Confucianism for over 2500 years. In the school context, traditional culture is often associated with centralised authority, collectivism and harmony. Socialist culture has become influential since the Chinese Civil War in 1945–1949. This type of culture has politicised the centralised power and authority of school principals in decision-making. Enterprise culture has promoted the importance of marketization in education system since the implementation of Open Door Policy for transforming China's economy since the late 1970s. Patriarchal culture has influenced how people in Chinese societies understand, perceive and enact the role of men and women in school leadership. In addition, Hofstede identified four dimensions of cultural values: power distance, uncertainty avoidance, individualism versus collectivism and masculinity versus femininity [49]. Some have suggested that Hofstede's work on individualism versus collectivism and power

distance would have been better defined in terms of loyal involvement and utilitarian involvement, representing varying orientations towards the continuity of group membership, just as conservatism and egalitarian commitment represent different orientations towards the obligations of social relationships [50]. Schwartz undertook detailed work on cultural values, defining six types: conservatism, intellectual and affective autonomy, harmony, egalitarian commitment, mastery and hierarchy [51]. In addition to the dimensions of cultural values mentioned above, Confucianism has commonly been relied on to describe leadership cultures in the Chinese context [32, 52]. Cultural values in China are highly complex. These cultural values are deeply embedded in leadership practices. A plethora of research has focused on school leadership in China. From this, three mainstream Chinese cultural systems have been captured: Confucianism, collectivism and Chinese communism [52]. A study conducted by Ho has found that the leadership practices and collegiality are shaped by the presence of collective, harmonious relationships under the influence of Confucianism [43]. Fu and Tsui depict that 'hard working, devoted, action-oriented, determined, servicing, abide by principles, collectivistic, corruption resistant, democratic, optimistic, relying on followers, self-sacrificing, value driven, and visionary' are unique characteristics of leadership in the Chinese context ([53] p442). These characteristics are perceived as compatible with the communist ideologies. Research on how the moral integrity of school principals is influenced by the Chinese communism has been a focus of educational leadership since the late 1990s [54, 55].

Cultural contexts shape the ways in which leaders enact leadership practices [56]. That is, leadership concepts and behaviours that appear similar can be interpreted differently due to their different socio-cultural contexts [57]. The interpretation of leadership concepts and behaviours in the Chinese context has been influenced by the Chinese culture. Hence, there is a need to understand the practices of school leadership through the lens of the Chinese cultural system rather than solely through Western theoretical perspectives [48].

Since the 1990s, scholars working in the school leadership field have argued that when applying the theories and practices of school leadership across cultures, special attention should be paid to socio-cultural contexts (e.g., [58–60]). Culture influences the thinking and behaviour of various school stakeholders, including students, teachers, principals, administrators, parents and policy makers [59]. However, the recent literature (e.g., [61–63]) has indicated that the cultural factors have not yet been adequately addressed by relevant studies on school leadership [64]. Indeed, school leadership studies conducted in Asia, including China, have been criticised for being full of 'cultural borrowing' [63].

Because leadership is a value-laden concept [65, 66] influenced by social, political, cultural and economic contexts [33, 48], when looking at Chinese schools, it is important to understand the influence of Chinese culture on leadership concepts and behaviours through the lens of cultural values. Numerous studies have attempted to identify the influence of Chinese culture on leadership concepts and practices (e.g., [52, 59]). This must now be extended to include the Chinese educational stakeholders in ECE and how the Chinese culture influences their interpretations of leadership concepts and behaviours.

4. The changing landscape of school leadership

As previously mentioned, since 1989, the management system of preschools in China has fallen under the domain of the *Preschool Director's Responsibility* [24]. Within this domain, preschool principals are responsible for handling all vital concerns and decisions. However, ECE in China has been changing rapidly due to a

number of factors, such as the introduction of universal ECE, changed government policy, increasing student enrolment rates, improved standards regarding teacher qualifications and professional development. In this changing context, the practice of school leadership has been evolving. It has been argued that teacher leadership is a key factor in the success of school change [67, 68]. Teacher leadership in ECE has been emerging in the context of educational reform [69]. Teacher leadership has a close relationship with teachers' professional development [16, 17, 19, 70]. It also leads to higher levels of job satisfaction and teacher retention [71], promotes continuing professional development [72, 73] and drives teachers to exciting endeavours [74]. Hulin and Judge noted that teachers who engage in leading roles have better job satisfaction [75]. This is beneficial to their psychological well-being. Research has found that teachers with greater job satisfaction are more willing to participate in school decision-making [76]. Given that teacher leadership is critical to teachers' job satisfaction and teacher retention, it is important to explore the practices of ECE teacher leadership in China. In this way, a sustainable and high-quality teaching force can be promoted and built. Recent studies on school development have focused on the relationship between teacher leadership and continuing professional development. It has been found that continuing professional development could build a teacher's capacity to lead his or her colleagues to change [19, 77]. This implies that it is important to build teachers' leadership capacity. Through such a process, teachers can develop self-direction, independence and autonomy. To formulate a theoretical framework that can be used in the foreground of research into school leadership in ECE in China, we conceptualise three types of leadership practices: centralised, co-existing and decentralised.

4.1 Centralised leadership

Staff-management has been identified as a key component of school leadership [78]. In ECE in China, it has mainly been the province of preschool principals. They seldom involve their subordinates in staff management. In other words, the exercise of power and authority is largely centralised in the hands of preschool principals and in a form of single leadership.

Under centralised leadership, principals have absolute power and authority over staff management; it is a top-down management approach [79, 80]. This type of leadership practice has been commonly accepted by the subordinates in Chinese preschools who have agreed that 'only the principal has the final say' [69]. In Confucian society, the sovereign-subject relationship required followers to obey their leaders' orders. Based on that tradition, preschool principals in China today are responsible for handling all vital decisions. Teachers rarely assume leadership roles at the organisational level. In this situation, it is common for teachers to perceive themselves as followers and hold passive attitudes towards decision-making in staff management, hesitating to take on leading roles [80].

4.2 Co-existing leadership

In preschool organisational structures, the parent-school committee and party branch are parallel to the principals. By establishing a party branch, the Communist Party ensures its policies are implemented and political education is provided to the faculties and students [81]. Normally, there are two vice principals. One is the leader of the teaching research group (TRG). The other oversees logistics and is the secretary of the party branch [82]. Modelled after the Soviet Union in the 1950s, all schools in China began to establish TRGs as a formal functional group within the organisational structure. The responsibility of the TRGs is to coordinate teachers

so they can implement the educational policies stipulated by local governments, work together on the curriculum and pedagogical innovations and participate in professional development and exchange [83]. Although the central government has defined TRGs as teacher professional learning communities instead of administrative organisations [84], TRGs not only work on teacher professional development and teaching issues, but also address teachers' affairs beyond teaching and learning. For example, they prepare teachers for job promotions, help resolve their personal problems and endeavour to improve their interpersonal skills [85]. To this extent, TRGs partly share the administrative tasks of teacher management [86, 87]. Due to their dual role in leading curriculum development and teacher management, TRGs are able to promote collaborative work among teachers and encourage them to learn from each other, nurturing a democratic, positive, harmonious and open-minded subculture within the group. TRGs harmoniously enact collegiality within the hierarchical and bureaucratic system and provide a countervailing influence to the power of the principals [88].

In ECE, the leaders of TRGs are generally regarded as formal leaders in curriculum development [86]. The roles of TRG leaders in China's preschools vary, depending on their positions within the organisational structure and their responsibilities. A number of studies on TRGS have revealed that their leaders play a key role in facilitating communications between senior leaders and classroom teachers [89–91]. Because they work closely with principals, they are regarded as principals' think tanks and assistants [90]. The leaders of TRGs play multiple roles in school management and leadership. Niu and Liu claimed that TRG leaders act as consultants to principals in school decisions [91]. Further, TRG leaders work as experts on the curriculum, pedagogy and educational research. They are both the coordinators of staff interpersonal relationships and external liaisons. They are managers of school administration and the internal trainers for staff professional development [92]. Shi and Xie found that the roles of TRG leaders had been changing from information conveyers to professional experts, from managers to leaders of learning and research and from teachers to self-reflective practitioners and researchers [93].

Recently, there has been a shift in attention from focusing on the personal traits and characteristics of TRG leaders to emphasising TRG leadership practices. For example, Gu argued that effective TRG leaders should have a sense of risk-taking, an awareness of teamwork and collaboration, an innovative mind-set and a strong commitment and dedication to education quality [94]. Bai asserted that a capable TRG leader is innovative and academically knowledgeable, good at organisational coordination and communication skills and embraced the spirit of teamwork [95]. Wang and Xin concluded that the characteristics of an effective TRG leader can be categorised into three areas [96]:

1. Having high moral standards: clearly know the responsibilities, seek truth from the facts, have integrity in politics; dare to take responsibility, adhere to principles and persist to the bottom line of moral standards; sensibly treat the promotion.

2. Being professional in work: able to lead teaching and research work and be leaders in professional development.

3. Having a clear role identity of a TRG leader and being able to carry out its role and functions.

A study conducted by Guo showed that TRG leaders are good at teaching, communication and self-management. However, they are weak in curriculum planning,

scientific research and coordination [85]. The reason for this is the lack of professional development and empowerment opportunities for TRG leaders.

4.3 Decentralised leadership

In the notion of teacher leadership, the teacher acts as the leader, influencing others to produce better educational practices and student outcomes [97, 98]. In ECE, parents are the key stakeholders. The involvement of parents in home-school committees can be understood as a vehicle for promoting teacher leadership because teachers have to work closely with parents for children's learning and development [99, 100]. As Greenlee argued, teachers are the school personnel who work most closely with parents day-to-day [101]. Teachers are willing to take on a leading role when working with parents for home-school collaboration in order to promote the holistic development of young children.

In China's ECE, the home-school committee is a common form of home-school collaboration. Within the network, the teacher leaders share their professional knowledge and child-rearing methods with parents. In turn, parental involvement plays a key role in school development [102]. Indeed, teacher leaders are expected to assume leadership roles to improve parental involvement [103]. It has been argued that compared with school principals, who are more concerned with administrative duties, classroom teachers have more opportunities to work with parents on the development of preschool children.

A study conducted in China indicated that classroom teachers are given the autonomy to engage in home-school committees, which is recognised as one type of teacher leadership practice [104]. This result reflects the introduction of two national policies, the *Preschool Teachers' Professional Standard* and *Preschool Job Directive Rules*, which have encouraged teachers to become involved in home-school committees and have emphasised that communication with parents is one of the teachers' leadership roles. In this regard, teacher leadership has emerged within China's ECE.

5. Concluding remarks

This chapter aims to offer a theoretical discussion on the changing landscape of leadership and explores the emerging practice of teacher leadership in ECE in China. Since 2010, the Chinese central government has introduced several waves of policies related to teachers' professional development, aimed at improving and promoting the quality of ECE. The global discourses mainly developed in the West have shown that school leadership plays an important role in promoting both teacher professional development and educational quality. These global discourses have influenced the reform agenda of the Chinese central government as reflected in the recent strategies formulated to develop school leadership in ECE. Against this background, the ECE teaching force has been recognised as the key to school improvement and development. Historically, ECE teachers have been viewed as babysitters rather than educators, and principals have been recognised as policy implementers and school managers rather than school leaders of innovation and change. As a result, preschool leadership has been placed as one of the top priorities in the reform agenda of ECE.

As previously discussed, school leadership practices in China's ECE have been influenced by the Chinese hierarchical culture and the management system of *Preschool Director's Responsibility*. To a certain extent, the changing ECE context has indicated that leadership practices are gradually transforming from centralised

to decentralised. In a Chinese hierarchical culture, there are questions about the extent to which principals can delegate power and authority to teachers. It has been argued that preschool principals take control of staff management and rarely distribute power and authority to their subordinates. School principals solely depend on middle-level leaders, or even on themselves. Further, research has indicated that teachers perform teacher leadership practices at the school level based on the premise of principals' power and authority [104]. Therefore, school principals should empower teachers to take on leadership roles at the school level. For example, school principals could empower teachers to provide suggestions on how to improve efficiency in the use of school operating funds, because teachers understand how such expenditures can promote teaching and learning. Doing so contributes to teachers' self-efficacy and morale [105] and flattens the hierarchical structure [106].

To summarise, since the 1970s, the Chinese central government has implemented a comprehensive educational reform to improve various aspects of ECE, such as universal education, school governance, school management, financial resources, teacher education and professional development. Educational reform has been shaping the landscape of school leadership from a centralised to both of a co-existing and a decentralised form. The practice of teacher leadership has been emerging in the area of home-school committees and teaching research groups. This has suggested that the role of ECE in China is changing from babysitting to developmental nurturing. Preschools act as important institutions that help nurture and develop young generations. To conclude, the above discussion has begun to flesh out the fundamental issues of school leadership practices in political and cultural dimensions, providing direction for future leadership inquiry.

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Advanced Digital Competence of the Teacher

Marina S. Tsvetkova and Vladimir M. Kiryukhin

Abstract

This chapter is devoted to the issues of changing the structure of the competence of teachers in the transformation of the school of the twenty-first century—the school of digital civilization. With this in mind, this chapter takes a fresh look at the advanced competencies of teachers of the near future in the context of these real school changes, the structure of which can be represented as the "triangle of digital competencies": life, social, and professional. As shown by analytical studies and experimental experience of teacher training, the results of which are presented in this chapter, this triangle of competences will allow children to be included in the digital school environment and form their further activity in the smart education system in the profession throughout their lives. It is also important to note that new competencies have become the basis of a new profession in the school—a digital curator, which is also discussed in this chapter.

Keywords: digital economy, digital pedagogy, digital competence of teachers, smart education, digital school, digital curator

1. Introduction

Each new stage in the development of society changes first of all the forms of learning. The school of the eighteenth to nineteenth centuries, the school of humanism of the Enlightenment, changed the attitude toward the child in accordance with the nature of their growing up, aimed learning on the study of nature. It was an era of great scientific research and geographical discoveries, travel, and knowledge of the evolution of life on earth.

The school of the twentieth century, the school of the era of industrial society, became widespread and introduced into formal education scientific achievements, educational equipment, mathematics, as the language of science, and rationalism in cognition and design. It was a period of searching for new pedagogical methods, and as a result, the twentieth century became the century of universal literacy.

The school of the twenty-first century, a digital school, made it possible to use the individualization of education in a global knowledge network that transformed the concept of school as a building where children study in classes. Network class, virtual network school, has become a reality.

Digital forms of formal education in the open knowledge network have become part of a new educational environment, a smart education environment in which each student can build their own individual educational route outside formal education in accordance with their educational developmental interests. This new form of education is part of the social benefits of the digital age for everyone throughout

their lives. The school of the twenty-first century is an open information resource of education for everyone; it is a school of universal education.

The history of the development of the digital competences of the citizens lasts from the 1960s of the twentieth century. In the second half of the twentieth century—the century of Cybernetics—massive development received television. It entered every home, which led to the instantaneous dissemination of information and the influence of the information flow on the public consciousness. This can be called the first information wave that was emerging at that time. In schools, there was a TV, and television in school time broadcasts TV courses of leading scientists in different subject areas directly to the classes. Now it has grown into a digital television, which has become available on the Internet to anyone in any country, not only as a public global media but also as part of a global network of knowledge.

Modern TV technologies have allowed to generate a new form of digital pedagogical education—MOOC, which gave rise to "tsunami" of higher education and became a possible alternative form of formal training. e-Learning, as a new pedagogical environment, requires new competencies from all teachers—e-learning competencies. Awareness about various courses, the ability to use the tools of online courses, and the ability to use video communications assist students in such courses—these are the key competencies of e-learning digital pedagogy of modernity and the future.

Since the 1980s, there has been a period of massive introduction of personal computers in human life, family, and school. It was a computer wave of social development. This wave swept the children in the education system, and the computerization of schools has begun. Computer classes, training programs and tests, e-books appeared in each school. Now this wave has grown into the infrastructure of digital schools, distance, and e-learning, accessible to the child with the use of collections of electronic learning materials and mass online courses.

In the first decade of the twenty-first century came the third digital wave—the development of mobile networks and the Internet and their coverage of all the inhabitants of the planet. This ensured the academic mobility of students and the accessibility of education to all children with any special needs via video link. Video consultations and trainings, webinars, teleconferences swept the educational environment. Social networks have formed a new subculture—a cyber society without borders between states and people. Scientists are already talking about the new humanism in the global social network, global media. The key issue for the development of our digital civilization is the preservation of the principles of humanism in the global digital world for future generations.

The school as a social institution has taken these digital waves upon itself, and this has influenced the extremely dynamic renewal and expansion of teachers' competencies—from traditional to digital. This demanded from governments to pay close attention to the digital competencies of citizens, and especially teachers, who form these competencies in children not spontaneously, but systematically for the socialization of the younger generation in the information society.

A modern digital society educator must continuously enrich and complement their digital competence by working with the growing digital generation of aboriginal children in the digital society.

Any adult, not only a teacher, will always face a new digital wave during his life, which is generated by more and more technically advanced information and communication technologies. In this sense, an adult, and a teacher also, in the community of children, always remains an emigrant of the digital society in the new digital wave.

Now we are experiencing a digital wave of artificial intelligence—the fourth industrial revolution and the electronic economy [1]. It is connected with the penetration of

numbers in the artificial world of things, which became possible to manage thanks to artificial intelligence already in the global information space through the Internet and mobile devices not only in the workplace but also in everyday life. In this new digital world, a teacher forms a willingness to live in a new civilization.

At the turn of the fourth digital wave, the international community of teachers under the auspices of UNESCO in 2010 developed a structure of ICT competence of teachers, which can serve as a framework for the development of new digital competencies of teachers [2]. What should be the structure of digital competence of teachers of the new digital wave, what prospects for the development of digital competence should lay society in the training of teachers? This issue will accompany the digital wave of our era for a long time; this is the focus of UNESCO's research in a globalizing world in the digital age [3].

Existing experience shows that user competencies (digital literacy) in the new conditions of the digital economy are transforming and include not only common for all user (life) digital competencies, but also professional digital competencies (profession digitalization) and new social digital competencies in the global information world. Consider this triangle of new advanced digital competencies for a teacher in the conditions of the fourth digital wave.

The concept of advanced digital competencies, presented in this chapter, is based on an analysis of the development of advanced training courses for teachers in ICT competences that have been held on large scale in Russia since 2000 within the framework of national targeted educational informatization programs. In particular, such programs were as follows:

- The program for the development of a unified educational information environment of the Russian Federation for 2000–2005 (at least five teachers were trained in each school of the country in open educational resources in school subjects—a single collection of digital educational resources).

- The program of developing the publicly accessible information environment "Russian E-School (NES)," raising the qualifications of teachers in e-learning methods, involving teachers in developing scenario lessons in the NES environment, including basic ICT competencies of teachers in the professional standard of teachers in Russia (2011–2015).

- The program of developing a new system of teacher certification, taking into account the key competencies of active work in the digital learning environment based on the use of information training systems in Russia (NES and the electronic textbook system in all school subjects), remote communication tools with students and parents (digital communication medium of electronic diaries), as well as systems of educational analytics (electronic system of accounting of control materials and the final certification of students) and electronic cloud-based document management (since 2015) [6].

2. The transformation of school in the digital environment

The new concept of "smart education" is debated, but there is an important material for International Studies, which is summarized in publications on the official website of UNESCO Institute for Information Technologies in Education (IITE) [11]. The problem of the deployment of smart education in different countries, including Russia, has already approaches and solutions, which can be solved by methods of digital pedagogy—pedagogy of the information society.

Digital school is an integral part of smart education. Digital school as a concept appeared at the beginning of the twenty-first century. This concept reflected the objective processes of development of the information society and its social institutions. The transformation of the educational system was the result of the formation of a global digital civilization. Society is on the verge of great change, and teachers are directly involved in the formation of a new education system in the world—digital education. One can only observe this process as a challenge of time, and one can be an active designer of digital education as an order of the information society for changes in social institutions, one of which is the school. Smart meaning "intelligent", spaces mart education—is automated, controlled, and accessed from anywhere in the educational process—the most complex system for integration in school.

Smart education integrates the new concepts of digital pedagogy [1]:

- Open educational resources (OER)

- Massive open online courses (MOOC)

- Educational platforms (learning management system/LMS)

- Electronic textbooks (smart book/e-book)

- Electronic libraries (e-library)

- Open licenses (e.g., Creative Commons)

- Mobile training and mobile educational services

- Cloud educational systems and Internet services Web 3.0

- Digital video communications

- Global media

- Automated management systems of educational organizations (e.g., the ACS of schools, "smart systems")

- Electronic portfolios and personal electronic offices of participants in the educational process

Undoubtedly, digital pedagogy engaged in system integration of various digital educational resources and organic insertion in the training along with traditional learning materials, their coordination and management throughout the country, ensuring access to them for every student and teacher. In addition, she is engaged in shaping new educational standards and resources, taking into account these new realities of the modern world, developing and testing methods for their use in educational activities, and updating teachers' competences. It should be noted that, in addition to schools, it covers all levels of education.

You can see that the process of updating education in terms of embedding innovations in digital pedagogy comes from the top down. The higher school responded first to the changes: smart university, electronic campus, open university—this is the current state of universities, and it all began with the introduction of distance learning and digital libraries. But if a university is a systemic mechanism of compact management within the corporate network of organizations, then the digital school

of the region is a global territorial system that includes hundreds of educational organizations in a single management from the region through a network of municipal clusters. At the same time, the globalization of the digital school is already underway in the Russian education: a federal cloud accounting system is being created for all students in the country, the state educational portal EDU.RU is being developed, and the new portal "Russian e-school" is being created.

For now, we are talking about digital schools as the pioneers of smart education. These are separate pilot schools that have begun to introduce digital services and education resources with coverage of all students and teachers of this school. However, digital pedagogy implies a systemic solution, that is, the design of smart education as a system of digital schools in the territory, and this is the task of the next decades. In many countries, digital school systems are already being created as global cities of smart education. Different models are selected, from the coverage of each school by a single territorial educational platform (digital model of formal education) to the global cloud environment open to everyone through mobile devices (digital model of nonformal education) [3].

There is no doubt that the introduction of intelligent educational models depends largely on the management decisions of the governing bodies of the country's education management. This factor can both enhance the pace of this construction, and slow them down what is observed in different countries in the twenty first century as a result of the development of digital society. New ICTs offer solutions for smart education and provide a lot of educational innovation. It is important that the pedagogical community in this process perceives new ICT in education not as a spectator, but as a creative community of like-minded creators. But there is a risk factor here—this is the staff readiness of teachers to build smart education. There are already pioneers of smart education, and with respect to them, one can trace the speed of updating schools in different countries.

Teachers in partnership with the family are people who directly integrate smart education innovations into the learning process. The role of the family in the design of smart education is very significant, since the special feature of the digital school of the territory is its penetration into the family, the inclusiveness of digital resources, and access to them in all areas of the child's activities at home and in any place where the child is.

It should be noted that in Russia for 30 years of informatization of education, teachers have been prepared to work with smart education objects, and there is already a family order for smart education. In every school, today there are more than half of teachers who are already using elements of the digital educational environment and are puzzled by the slowdown in the pace of introducing smart objects into the educational process. Such readiness of schools is a guarantee of a systemic good result. It is also a matter of the willingness of the smart education facilities themselves and the management level of specialists in the territories to constructively treat innovations. But various countries themselves choose digital school strategies, models, and learning platforms for their integration into smart education. At the same time, the following approaches can be distinguished in the design of smart education:

1. Development, globalization, and smart management of digital school resources through cloud services, including personalized in the region: an electronic diary for all schools in the territory, a unified management environment for diagnosing student achievement, electronic textbooks as a content system, a single access point to them in territories, and in integration with the electronic diary, open educational content and its development by students, ACS of the schools of the territory as a single mechanism of material and

financial accounting, including the global digital video network of education, mass open online courses in the cloud of the region in integration with universities for children and teachers, and above all the various extracurricular courses available for the development of creativity, research activities in areas of children's interests.

2. The introduction of different models of access to the resources of the digital school of the territory:

   - "one to one" (requires equipping each student with a mobile computer device);

   - "one to many" (a group of children needs access to a single digital resource containing courses and video services);

   - "many to one" (individual access of any child to computers and resources of several teachers is required, it is especially important to provide such access for children with disabilities, gifted schoolchildren who are trained according to an individual plan);

   - "many to many" (collective access is required for educational creative communities with groups of remote users, children, and adults, to use digital resources of libraries, clubs, museums, exhibitions, etc.). So far, such a model of interaction in a digital school is developing spontaneously, but we need to allocate Web space, for example, to create a "single window" so that groups of children and communities of teachers can use them at any time.

3. The system integration and strategic management of digital schools and digital education resources is the core of smart education in the region. Systems integration, considered as a digital school platform, can have its own development model (projection) in different countries of the world and in different territories in a particular country. It is already in its infancy and its growth rate is colossal, while it is formed spontaneously in the part of the procedures for embedding in the territories. The digital school platform includes a set of system solutions in a digital environment: banks of students and teachers, collections of educational materials, educational communication mediums, means of managing the educational process, financial and logistical accounting subsystems, and environment of creative portfolio of educational process participants. Here, we need a strategy for its design with the possibility of combining subsystems according to general technological requirements. In the meantime, it is necessary to analyze what to choose from a set of system solutions, how to put the selected constructs into a single smart education platform, and how to ensure its functioning as a global accessible educational environment in the territory. Digital school in the smart education system will allow to conduct educational analytics and identify the demand for digital resources, services, and educational statistics, that is, get a picture of the educational activity of children and teachers in various educational services and build on the basis of this analysis, promising trajectories of development and modernization of digital school, to determine the actual order for teachers' professional development in the most demanded directions of development of the school education system.

4. As part of the promotion of smart education ideas, the notion of resource availability plays a special role, that is, their openness and free access for all comers. At the same time, the most important focus is on the problem of the quality of

open digital educational resources in the modern Web space based on cloud and mobile technologies. This idea is reflected in the concept of a global "knowledge network" [3], which unites various educational resources on the Internet and is open to creativity of students and teachers in a digital school.

As shown by analytical studies and experimental experience of teacher training, an important perspective task of the development of a digital school is to ensure the readiness of teachers for work and creativity in the global knowledge network. This is one of the most important tasks of digital pedagogy. Therefore, there is a high demand for massive open online courses on advanced digital competencies of teachers. This is a new step toward the development of digital pedagogy, since this requires updating the structure of digital competences of teachers in the near future, taking into account the existing experience of informatization of education.

Such advanced competencies of a digital school teacher are represented by a triangle of digital competencies: vital digital competences (common user), social competencies (communicative competencies of the digital society), and profile competencies (on the subject of the teacher's activities). Consider their conceptual content.

3. Digital life competencies

Digital space is based on the mass exchange of information between people, computer programs, things, and machines. In the process of this global exchange of information in the world, there are common to all rules—the need for digital literacy, which relates mainly to the technological aspects of the use of cyberspace resources, which combine computers, mobile communications, and Internet of things (smart things that can be controlled remotely). Cyberspace accumulates huge amounts of information (big data). Cyberspace has become an integral part of our civilization, creating a cyberspace without borders. This society is not only capable of the highest progress but also carries dangerous threats as people create cyberspace and cyber worlds in it.

In the modern real computerized world, new technologies of artificial intelligence (smart technologies) are developing. These technologies allow machines, computer systems, to learn on the basis of the information that they process, to create new information objects themselves, and to interact with other machines and people, that is, to generate new cyber worlds or to contribute new features into existing hyperworlds. Smart technologies change society greatly, as in real life there are new relationships between people and smart machines, and this becomes part of the general digital competencies of citizens.

UNESCO's Information for All Programme [7] recognizes the considerable effort being invested by many international organizations in "measuring the information society," defining digital literacy as a life skill. Basic digital competence actually complements all major life competencies of citizens and expands opportunities in education, creative development, and professional growth and success in the work [8].

Cyber worlds, in which children of our digital wave already live, are a natural environment of normal human activity, filled with virtual analogs: cyber art, cyber education, cyber offices, cyber banks, cyber police, cyber libraries, cyber enterprises, cyber medicine, etc. All this should be included in the basic digital competence of the teacher to teach children to live in a digital world and to have an idea of the penetration of all new digital devices into it. Life digital competence of a competent user becomes a natural component of the general culture of the digital world.

4. Social digital competencies

All Internet users are cyber citizens, or Internet citizens, who have no geographical boundaries for interaction. How to be a cyber citizen in a global cyber society?

Our civilization as a cyber society works in everyday life continuously and at a high pace with large amounts of electronic information in the form of websites, e-mails, and visual and audio fragments (clips), which in turn leads to a decrease in attention, critical meaningful perception of information which is characteristic of the precomputer "book" civilization. Thus, fragmentation in the perception of information increases in a modern child, and "clip thinking" develops.

Cyber society bears the psychological threat to the man himself in it. Computer or Internet addiction is an irresistible addiction of a person to spend time at the computer or on the Internet. Internet addiction, which is now supplemented by and cyber mania, due to the increase in different new devices, allows not only to work with information in the Internet but also to immerse themselves in virtual worlds. All these are new aspects of pedagogy-digital pedagogy.

How to use the enormous possibilities of cyber-books, electronic textbooks, educational platforms, virtual reality and global communications to preserve value human communication and emotions, moral values of humanism, where insults, deception, fraud, rudeness, invasion of privacy is unacceptable? Studies in this direction show the importance of educating children in the spirit of humanism in the context of global media and the formation of new media information literacy [9].

Social digital competence of the teacher is not only psycho-oriented but is also aimed to form in children the value of education and general media literacy in working with information on the Internet and global media, prevention of cyber-crime and cyber mania, fostering a culture of cyber security and Internet etiquette in global knowledge networks as opposed to entertainment. Here, the teacher should act like a digital curator for the socialization of children in the digital world.

5. Professional and specialized digital competence

The profile aspect in digital competencies is a personal choice and the sphere of adaptation of each person to new challenges in the profession with the development of digital technologies throughout life, so as not to lose professionalism and keep up with the digital wave. Each high school student learns in the profile chosen by them, defining the future professional sphere of activity. Each teacher already has a professional environment, which is determined by the school curriculum and school subjects. Knowledge of all aspects of the subject is already insufficient for the teacher of the digital age.

Teachers' professional competences are based on general digital literacy but include general competencies of digital pedagogy, such as e-learning, use of learning platforms for mobile learning, e-books, and open educational resources. This also includes educational analytics systems based on big data, as well as digital competencies for the development and use of digital learning materials on job profile (pedagogical design) and digital learning equipment on school subjects (teacher's computer workplace) [6].

A wide range of digital materials of the knowledge network has become an important, if not predominant, part of the professional environment of the teacher. The ability to work with modern digital materials and learning platform, to be a tutor of e-learning, to actively use online courses for self-education in their subject—these are already existing key professional competencies of the teacher.

The digital wave has brought new resources to digital pedagogy—interactive worlds of cognitive activity, virtual reality, smart equipment for learning and practice, new approaches for educational analytics based on big data. Individual study route for each child is the nearest prospect in a mass traditional school, supplemented by e-learning in all subjects.

The advanced new professional digital competencies of the teacher are based on their inclusion in work with educational information systems, e-learning systems, and distance learning technologies, including video calls for the remote presence of children in the classroom. Each school should become a digital bridge for accessible education of children with their class and teachers, even if the child is out of school, studying at home, in a hospital or working in field practice, creative competition, temporarily being trained in another educational organization [10].

The new mission of a digital pedagogy teacher is to teach children to learn in a digital environment throughout their lives. It is also important that each teacher brings to the children's community information about new professions in their subject area. Children are focused on the future. Their professional choice is formed in school, and professions are formed by the digital economy and the new digital wave also defines the digitalization of the professions.

In addition to the professions of a programmer, web designer, and system administrator, which are traditionally digital for the beginning of the twenty-first century, the digital economy is rapidly enriching all professions with numbers and creating new professions. New professions of the near future show the dynamic addition of the surrounding world with the cyber world. Knowing about these professions, helping children to get basic professional skills with the involvement of business partners in school is the most important task for the professional choice of the child, their readiness for the challenges of the digital world.

6. New profession in school-digital curator

In the new digital wave, social digital competencies require special attention for teachers to work with children. It is necessary to strengthen the environment of development of social digital competences of teachers. In many countries, teachers have already appeared-digital curators in libraries and social adaptation centers, but it is important that they are in every school.

Professional standard "consultant in the field of digital literacy (digital curator)" is approved in Russia from October 31, 2018, by the Ministry of Labor and Social Protection [4]. The responsible organization developer of the professional standard was the all-Russian public and state educational organization "knowledge" [5].

The purpose of the new type of professional activity is to advise on the use of information and communication technologies in various spheres of life, to promote the development of digital literacy of different groups of the population.

The competencies of the digital curator are the following:

- conducting direct reception of citizens' appeals;

- electronic communication on citizens' appeals;

- search and processing of information required for consultations in accordance with the work assignment;

- visual and remote placement of information and consultations;

- maintaining a database of citizens who have applied for advice;

- explanation and demonstration of the ICT application algorithm;

- informing about the most common threats when working in the network, using the means of communication;

- informing about the main methods of combating cyber threats;

- conducting surveys and questionnaires on the results of activities aimed at the development of digital literacy;

- development of programs of information and educational activities for the development of digital literacy of various groups of citizens and the promotion of consulting services;

- diagnostics of the level of digital literacy of the citizen who applied for consultation;

- analysis of the market of digital products and services, digital literacy of the citizens, and resources for their development (information resources, educational and enlightening programs);

- organization of the introduction of modern methods, techniques and forms of counseling on digital literacy development, dissemination of positive experience of counseling, etc.

Digital curator should know the rules of business correspondence and written etiquette; rules of business communication and speech etiquette; requirements for documentation; norms of the native language; principles and mechanisms of search engines; and functionality of popular search services. They need to know the legislation of the country law in the field of intellectual property, personal data, types and basic user characteristics of mobile devices; basic principles of organization; and functioning of computer networks. They should be familiar with the main online services for the provision of electronic services, state portals, and municipal services, including services provided with the use of electronic social cards, electronic payments, electronic queues, and electronic reception. They are required to get acquainted with the trends in the development of information and communication technologies and digital literacy; the market of modern educational programs aimed at the development of digital literacy; directions and prospects for the development of ICT for the citizens; modern approaches, forms, methods, and techniques of additional education and enlightenment; features of additional education and education on the development of digital literacy; etc.

7. Conclusion

The triangle of digital competencies creates a stable structure for their development. Vital (custom) digital competencies will keep up with the world of digital devices and services. Profile and professional competencies will determine the adaptability and success in the conditions of digitalization of professions. Social digital competence of citizens will help to preserve our fragile world on the

principles of humanism and creative development of our children, to avoid atomization of digital society.

The child acquires vital user digital competencies not only at school, but also in everyday life, communication, profile competencies—in school and in the system of additional education, professional digital competence—in the system of professional education.

Traditionally, the development of general user and professional digital competencies of teachers is engaged in the system of professional development of teachers, for which every year new courses are formed taking into account the development of digital pedagogy. As for the formation of social digital competencies in children at school, this is connected with the socialization and upbringing of children in a digital society, which has new features reflected in the interaction with the cyber world, cyber security, and legal information literacy of active citizens of any country. Here, the school needs help, and the digital curator of the school will become a new profession generated by the digital wave of our time. Digital curator will unite the efforts of the school as a social platform for working with children and family in the socialization of children in the face of complex challenges of the new digital world.

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Chapter 14

Leagility in Pedagogy: Applying Logistics and Supply Chain Management Thinking to Higher Education

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Abstract

Higher Education Institutions (HEIs) are commercial organisations facing the same operational problems as any business organisation, thus needing an appropriate business model, particularly for the teaching and learning processes which we refer to as the pedagogical system. The Logistics and Supply Chain Management (LSCM) paradigms are suggested as this new business model. The terminology of "agile education", "agile pedagogy", "the agile classroom", and "lean education" imply similar constructs for education derived from the literature on LSCM, and the intention is to overcome the perceived 8 wastes of education, based on the 8 wastes of manufacturing from the lean thinking model. The Internet is discussed in terms of it being both a disruptive and enabling technology for educationalists and students alike. A high level of digital literacy is now required of both. This paper is a discursive discussion, based on personal experience and perceptions of the author in the university sector. The educational research paradigm known as the "teacher-researcher" or "the teacher as researcher in the classroom" is elaborated, together with Educational Action Research, to meet the possible criticism of this proposal and discussion as being based on the personal opinions of the author.

Keywords: agile education, agile pedagogy, lean education, educational leagility, education technology, the 8 wastes of education

1. Introduction

Higher Education Institutions (HEIs) are commercial organisations facing the same problems of customer service levels, and cost inefficiencies, and competition, as any commercial organisation, therefore a radically different view of the pedagogical processes is required for future survival. A pedagogical paradigm based on LSCM for the HEI pedagogical system is proposed.

Even a brief study of the literature and the popular media reveals these competitive threats to the future of many HEIs. From [1] "*… in the current ecosystem, past success doesn't guarantee future success. No institution is too big to fail*". HEIs face daunting challenges, and to ensure financial sustainability, many HEIs are responding with changes to their business models [2, 3]. This is in contradiction to the classical attitude towards education that HEIs are not commercial enterprises, and must

accept that students are customers [4, 5]. HEIs cannot be the "ivory tower detached from the real world" style and must provide job skills, organisational "social" skills, problem-solving skills, know-how, as well as know-what and know-why as well as subject matter expertise [6].

Students pay to attend the HEI, therefore they are the customers. The provision of education is a multi-billion-dollar industry, ranking high in the importance scale of export industries. for example, in Australia, international students generated a record AUD\$28 billion in income for Australia in 2016/17 [7].

Clearly, HEIs are commercial enterprises operating as a competitive, commercial industry, and it equally clear that a new model of HEI pedagogy is needed that considers HEIs as competitive, commercial enterprises whose education processes are appropriately seen as being akin to product development, production, and LSCM processes [8].

We also must consider both the disruptive impact of the Internet, and the opportunities that the Internet provides, on current and future scholarship and pedagogy. A high level of digital literacy is now becoming almost an existential requirement for teachers, researchers, and students.

2. Three higher education systems

HEIs have three systems in play; the General Administration System, the Education Administration System, and the Pedagogical System. While being related, these systems can be defined separately as to their function and processes. The application of Lean Thinking and Organisational Agility to the general and academic administrative processes is not controversial, and many HEIs are applying both Lean and Agile to these processes. However, less attention has been paid to applying these to the Pedagogical System, which I have defined below:

2.1 The general administration system

Includes all of the general administrative functions necessary for the HEI to continue operations: HRM, payroll, purchasing, accounting, budgeting, and so on.

2.2 The education administration system

Includes all of the administrative functions necessary for the university to manage student applications, course and subject enrolments, organise teaching timetables, record examination results and grades, and appeals against assessment, graduate research and dissertation submission, and deciding on curriculum.

2.3 The pedagogical system

Includes all of the processes and activities involved in curriculum design, sourcing, development and availability to students, monitoring the learning activities of the students, and the assessment and evaluation activities necessary to monitor student progress and to monitor the quality and success of these processes; i.e. all the teaching, learning, assessment and curriculum matters.

This is the system that we see as being of particular relevance when considering "agile education" or, also terms used in the literature, "agile classrooms" and "pedagogical agility". As joint players in this system, the role of both teachers and students working together collaboratively in the twenty-first century is of great importance.

3. The traditional pedagogical system: Problems and solutions

The pedagogical system in all of the HEIs with which the author is familiar, having been involved in higher education for more than 50 years, have followed a particular traditional and unchanged pattern for decades, if not centuries.

4. A progression of subjects

A course is a series of subjects undertaken by the students, each subject bounded by the time constraint of a teaching term, usually of a duration of 16 teaching weeks, with 2 teaching terms per year with usually a long holiday period over the summer. The number of subjects per term varies, depending on the HEI, with each subject covering a relatively small part of the overall learning load.

Each subject is studied by the whole cohort or "batch" of students with little or no opportunity to "get ahead" by private study or at the student's initiative. This is therefore reminiscent of a batch production system with fixed product output essentially based on the Ford model of production circa 1920. A batch, or cohort, of students enters together at the same time, advances through the course at a designated pace without the ability or incentive to accelerate their learning, and with little or no opportunity for individualistic education according to the student's interest, producing a product well described by Henry Ford's sales motto "you can choose any colour as long as it is black".

The production and LSCM paradigms, together with the new opportunities offered by the Internet, will free up students from the lock-step, batch processing approach, enabling a more student self-guided but mentored approach to teaching and learning, allowing students to advance at their own accelerated or reduced pace: "agile and lean education" thus "leagility".

To achieve this, knowledge units of various kinds including videos, PowerPoint presentations, downloadable lectures and any variety of information, be made available on an Anywhere/Anytime/AnyDevice basis, allowing continuous and longitudinal learning online learning and assessment opportunities. The learning process based on term-length subjects would be abandoned. Students would be able to advance at their own pace, an accelerated pace, or a slower pace, thus overcoming the restraints of the batch or cohort processing production line. Appropriate teaching methods would be applied which would include teachers holding appropriate meetings or having brief seminars and practical sessions to elucidate the subject matter as necessary.

5. Taught usually by a single teacher or lecturer

In each subject, a particular teacher, usually referred to in HEIs as a lecturer, is the Lecturer-in-Charge (LIC), acting alone or with teaching assistants or tutors. The LIC usually assumes "ownership" of the subject with the responsibility to present the required subject curriculum, which presumably is commensurate with what is being taught in other subjects. This "ownership" concept also implies that the LIC of a particular subject may object to "interference" from another lecturer, and may also refuse to assist other lecturers. Thus, teaching often occurs in "silos" without interaction or collaboration. To overcome this problem, teachers would be designated learning leaders, and would work in teaching teams to ensure that the broadest knowledge base would be available to students at any time, in any knowledge unit.

6. In a lecture hall or classroom

The lecturer's primary presentation method is traditionally to have a stand-up lecture on a weekly basis of usually 2 hours' duration. This has often been termed the "chalk and talk" approach, and even, somewhat disparagingly, the "Sage on the Stage" approach. The "teaching" process also includes an associated period of a further 1, 2, and sometimes 3 hours per week, variously termed a tutorial or "prac.", or a workshop or lab, are undertaken by the students on a weekly basis.

There are many problems here which are barriers to quality teaching and learning. Student boredom in such classes is an obvious and often observed fact. Students are required to listen to lectures and attend classes that may be held at inconvenient times and need to attend the lectures or classes on the campus come rain, hail or shine, regardless of the distance the student needs to travel to attend the lecture. Often significant amounts of time are wasted in travel. The fact that students are often engaged in full- and part-time work is also a factor that demands attention.

Classroom teaching of this style has been found to be the least effective for learning. According to **Figure 1**, sourced from (NTL Institute, https://www.ntl.org/), attending a lecture is the least successful learning experience. Online delivery of knowledge units with supporting as-needed classes and seminars should be the usual mode of delivery of curriculum, and formal stand-up classes should be abandoned. Anywhere/Anytime/AnyDevice access to online stored curriculum should be the preferred method of knowledge delivery. The Internet can be used as a significant curriculum delivery technology and a collaboration platform between teachers and students. We need to adopt a radical terminology to replace "classroom". Instead, we suggest "learning spaces", such as have been set up in various HEIs in Australia, for example [9], referred to in [10] as a teaching hub. Note also in [10] the references to "no lectures, no exams".
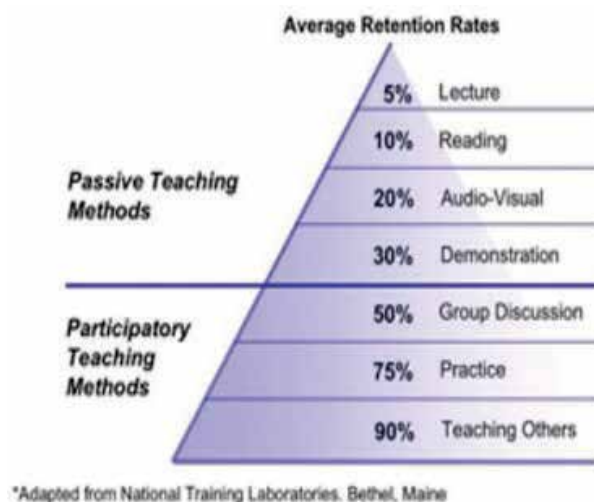

Figure 1.
The National Training Laboratories' learning pyramid.

7. Assessment of student learning achievement

Assessment is a huge area of quality problems, with often highly stressed students sitting important exams and being unable to perform to their full capabilities.

"end-of-term" assessment, referred to in the production process literature as "end-of-line" QA, is ineffective, and often requires students to acquire sufficient "last minute" knowledge to pass, which is then forgotten because it was shallow learning, and discarded following the exam, having served its purpose. Assessment often includes also a mid-term test, which is a sit-down test of perhaps 2 hours' duration, and there is inevitably a Final Examination which is also a sit-down test of 2 or 3 hours' duration, which will contribute the majority of the assessment grade.

Formal examinations are not necessary if a variety of well-researched assessment methods are applied; student self-assessment [11], peer assessment (within student learning teams) [12], assessment based on project outcomes, online quizzes that can be repeated as many times as necessary until a result of 100% or close is achieved. Formative assessment that informs teachers to enable them to monitor, mentor and assist students to achieve a high level of knowledge acquisition is much preferable to summative assessment. Again, the Internet offers a solution here, at least as an effective and efficient method of assessment.

8. Continuous assessment during term

Student assessment usually "continuous assessment" that includes weekly assignments and/or a "term paper" of some substance. This style of assessment is fraught with problems, particularly plagiarism, copying, and also paying for an external "expert" to do the work. The Internet has had an important impact on this, giving students a much greater opportunity for plagiarising. The knowledge acquisition and assessment problems here are that the student may not actually learn anything from their assignments, yet gain high marks for this continuous assessment activity, but then fail the final exam dismally. The continuous assessment activity may be a hands-on project, such as is common in computer system development subjects, with the scope of the development problem is necessarily limited, often to the point of being useless as a learning activity. This problem can be overcome by applying a variety of assessment methods, and presenting curriculum in a significantly different manner, as has been discussed above. In [13], a proposal specific to computer system development courses, suggests a major project that is developed over the entire period of the course which would include "Just-in-Time" curriculum, another LSCM concept.

9. Sit-down exams

Sit-down examinations are extremely problematic, especially when used for summative assessment only. First, the stress felt by students in the exam room has a significant impact on student achievement in the exam, particularly for those students who are already at risk by being ill-prepared. Then, there is the problem of shallow learning, actually encouraged by the common practice and requirement to give students "exam hints" in the last lecture of the term, thus narrowing the scope of learning for the students preparing for the exam. This practice encourages a last-minute mad scramble to learn something about the indicated topics sufficient to perhaps pass the exam, and can then be forgotten, having served the purpose. This activity occurs in what is often termed "swat vac" which is a 1 or 2 weeks "laytime" between the end of the lecture series and the exam. This "cram, sit and then forget" problem creates on-going problems when that information is pre-requisite knowledge for subsequent subjects. It also counts as a waste of education; wasted time particularly, sub-standard quality of learning.

The solution has been discussed above; a teaching, learning and assessment process based on the Internet as the primary curriculum delivery technology, offering Anywhere/Anytime/AnyDevice accessibility to knowledge units.

It is incumbent on HEIs to offer students an interesting, even exciting and fun, learning environment to draw and keep student willingness to learn. This requires hands-on, practical learning, project-based, and using all of the facilities and tools offered by the Internet, together with "learning spaces" equipped with TVs, fast Internet access, e-learning material, and a portfolio of Internet-based software.

10. Quality assurance for assessments

Quality assurance of assessment instruments and their contents is highly problematic. It is extremely difficult to ensure fully fair and proper exam paper content. To be so, many questions arise on the appropriate and proper presentation of the subject matter to the students during the term, on the quantity of subject matter presented being appropriate to the time constraint of the length of the term, on the quality of teaching. Are the questions clearly understandable and unambiguous? Is the assessment rubric appropriate and sure to provide objectively fair assessments? Were the questions too simple and too easily answered, thus lowering the standard of learning required? Were the questions unreasonably difficult? The solution has been suggested above: peer-assessment, self-assessment, longitudinal assessment, and a variety of assessment methods which are not based on sit-down examinations. I might even suggest here a new term: "agile assessment" meaning frequent and repeatable assessment, and the application of various assessment methods as a triangulated assessment process.

11. Failure to learn assessed as a pass

This is a significant quality problem. While a 50% pass grade is lauded, and gratefully received by many students, what this really means is that the student has failed to learn 50% of the required curriculum.

Passing grades may vary between 45 and 60% to achieve a "C" grade, meaning a pass. This implies that it is acceptable for the student to exit the subject having failed to learn half of the subject matter, and if the student's grades are consistent, it is possible for that student to graduate from the HEI even though they have failed to learn some 50% of the total subject matter included in the course.

As a quality measure, students should be required to, and be able to, repeat any assessment task until a grade of at least 90% is achieved: "agile assessment" again. A program of longitudinal assessment, as discussed above, with teacher responsibility for supporting and mentoring students to achieve this outcome, should be in place. Frequent tests, often computer-administered, during and at the end of each knowledge unit, will indicate if students are progressing well, will enable appropriate intervention as necessary, will provide continual satisfaction and confidence to the student, and will never allow a student to fail, resulting in the heartbreaking problems discussed next.

12. One-chance assessment

Two weeks after the final exam of the term the student may be told "sorry, you failed, come back next year and try again". This often imposes a social, familial,

financial and psychological burden on the student which could have been avoided if assessment had been done differently, and for a different reason, that being formative assessment, accompanied by a very different role of both teachers and students, in the former case as mentors, curators of content, and learning leaders, and in the student case, as willing students able to undertake guided learning, self-directed learning and self-motivated learning assisted by the teachers.

13. Assessment of teachers/lecturers

In many HEIs, assessment of lecturers is undertaken, using a number of different methods, including, often as a significant component, up to 50%, of the overall assessment, student feedback. Assessment of teachers is done for many reasons including promotion opportunities, salary increments, and contract extensions. So assessment of teachers' performance can have a profound impact on the teachers' career prospects. This does have an often profound impact on the teacher or lecturer's performance and standard of curriculum developed and presented and students' assessment outcomes. Assessment criteria of lecturers may include the pass rate of the students in the subject, the overall grades by simple statistics of mean, mode, median etc., and scrutiny of lecture materials prepared which, in this day and age, seem to be well-designed PowerPoint slides as being essential. Assessment of lecturers is included in this discussion as being part of the pedagogical system because of the potential impacts, both positive and negative, that such assessment may have on lecturer behaviour, assessment standards and lecturer-student relationships. It has been my experience that lecturers are not infrequently tempted to "game the system" by promising easy exams, signalling exam content, reducing curriculum content and even showing favouritism to particular students in their assessments to ensure positive feedback from the students, and boosting assessment scores for the same purpose.

14. The mass education enabling revolutions

As we are looking forward into the twenty-first century, it is informative to look back at what can be termed the mass education enabling revolutions. By this, we mean the development or invention of technology that enabled mass education to be delivered to all members of society. The 1st mass education enabling revolution occurred with the invention of the Gutenberg printing press, circa 1440. This printing device enabled the printing of books on a large-scale, taking the production and publishing of books out of the medieval monasteries and making information available to be widely distributed, thus heralding, and enabling, mass education.

The 2nd mass education enabling revolution was the invention and wide availability of the Internet. Nowadays, as has been well demonstrated, vast quantities of information are available to students and scholars, more than has ever been available "in one place" in the history of mankind. "Availability" implies not only the existence of the knowledge (the US Library of Congress is the largest library in the world, with millions of books, recordings, photographs, newspapers, maps and manuscripts in its collections) but also "accessibility". One significant aspect of this Internet-based information revolution is the accessibility of that information to anyone who has a cheap computer and an Internet connection in their home, or in their classroom. The information is available 24 hours a day, 7 days a week, on an Anywhere/Anytime/AnyDevice basis.

The impact of the Internet on mass education, actual and possible, is, without doubt, revolutionary and enormous. The Internet and its associated information storage, accessibility and searchability, with a world-wide web of hyperlinking capability, is also possibly the most disruptive technology in the history of mankind, not the least of which is its impact on education. The Internet enables, demands even, that education delivery, the stuff of the HEI pedagogical system, change in a radical, overwhelming way, and methods and procedures for the properly organised use of and the efficient and effective utilisation of the Internet is now an imperative facing educators, scholars, and students at all levels.

The Internet opens up wider, broader, deeper, more abundant information to students and teachers, accessible in a way never before seen. It is now imperative that teachers at all levels of education; pre-school, primary, secondary, tertiary, and in all educational environments, trades oriented, academic studies, develop a significant level of what is now being termed digital literacy, and a new mindset on how to use the Internet to full advantage. This is so significant that a new theory of Internet access and use has been developed: connectivedness theory.

Using the Internet as a learning tool in the classroom, organising lessons and applying teaching approaches in a new and novel way, is a must, and each and every teacher needs to develop expertise in a personal set of Internet tools, including word processing, presentation tools, graphics programs, data storage sites to allow Anywhere/Anytime/AnyDevice access to materials, social networking tools, remote accessing, search engines; all of those now essential tools to fully use this digital environment, and to be able to teach them competently.

As such, the Internet is a highly disruptive technology in education, having opened up huge opportunities in education, but demanding a very high level of digital literacy on both teachers and students to be able to take full advantage of more technology in the classroom, for research, and for administration. In fact, it is quite possible that the Internet challenges the very existence of "red brick" HEIs.

15. The eight wastes of education

An underlying principle of this proposal is related to the eradication of waste in the pedagogical system [14]. What is now known as the 8 wastes of education have been derived from the original seven wastes (Muda) of manufacturing, developed by Taiichi Ohno, the Chief Engineer at Toyota, as part of the Toyota Production System (TPS), and subsequently extended to 8 [15, 16]. These "Wastes" provide the philosophical *raison d'etre* of the lean movement which is dedicated to the eradication of waste in any endeavour. Following on from these "8 Wastes of Manufacturing", other authors have described these wastes in terms of particular endeavours, such as software engineering [17], as part of the Agile Software Development movement that arose in 2001. This association is important in the education sphere as at least one of the agile software development method published, Scrum [18] has been adapted and adopted into the classroom, under the heading of Agile Classrooms [19]. More recently, Lean Thinking has been applied to education as "Lean Education", "Lean Pedagogy" [20–22].

I have defined the 7 wastes of education, first published in [23], which was elaborated in [24], and then extended to be the 8 wastes of education published in [25] (**Table 1**). This is certainly neither the only rendition of these "Wastes", nor the first, it must be stated.

There have been many other attempts at defining the wastes of education to be found in the literature, not necessarily following the "8 Wastes of Manufacturing" Pattern. [26] applies these to the three main groups of actors in higher education;

Type of waste	Explanation
Overproduction	Extra and unnecessary curriculum content and knowledge that is not useful or useable. Time spent developing curricula that may be purchased
Waiting	The knowledge gained by students that must be "put on hold" until required later in the pedagogical process which tends to be forgotten or becomes irrelevant
Transport	Movement of knowledge from one subject to another, wasting resources by the need to re-teach. The physical movement of staff and students to and from teaching locations, attendance in a classroom at a specific time
Inappropriate processing	Inefficient and ineffectual teaching and learning processes, such as classroom teaching, and failure to apply Internet technology efficiently, and ineffective assessment activities
Inventory	Concepts, ideas, specific knowledge that must be stored (i.e. remembered) for a future time which is forgotten or becomes obsolete and irrelevant (leakage in LSCM terms)
Unnecessary & excessive motion	Student and staff physical and intellectual movement between subjects and classes, overly dependent on pre-requisite knowledge, lack of coherent streaming of curriculum resulting
Defects	Shallow learning, forgotten subject matter, failure to comprehend subject-matter, plagiarism, cheating, inappropriate curriculum. Obsolete curriculum
Recognition of staff	Failure to recognise and acknowledge teacher and student abilities and suggestions, failure to develop, failure to make use of students research

Table 1.
The 8 wastes of education.

administrative staff, academic staff, and students (paralleling the three systems: General Administration, Academic Administration and pedagogical, stated above), and in each case most of the wastes are in regard to the physical workplace and physical movement of the actors.

For academic staff, the waste of motion is "Walking to deliver lectures and seminars in different areas or buildings in the same teaching day". For students, the waste of motion as "Scheduling classes for a single course in widely separated locations", and the waste of waiting as "Waiting for results/waiting for a lecture to start/waiting for equipment to be returned (or waiting for books to be returned to the library by another borrower (my addition))".

These wastes are obviously particular to the physical environment and class scheduling, and identify some significant wastes that can be overcome by the imaginative and effective use of the Internet as a vehicle for the simple and time-saving dissemination of course material to students by the academics, accessible by the students on an Anywhere/Anytime/AnyDevice basis, alleviating a significant problem of the physical movement and time requirements of the traditional "come to class from wherever you live" to learn from the lecturer who must move to the lecture location (unless of course the class must be cancelled due to the absence of the lecturer, or the student is unable to come due to personal matters such as sickness, or inclement weather or transport problems).

16. Adopting production line, product development, logistics and supply chain management paradigms

The HEI pedagogical system must be dramatically reorganised and re-designed, and the LSCM paradigm be adopted, including the production line processes of modern manufacturing, and, possibly even more importantly, lean product development.

17. What can we learn from logistics and supply chain management

The term "logistics" is used to refer to the process of coordinating and moving resources—people, materials, inventory, and equipment—from one location to storage at the desired destination [27]. More generally, logistics is the act of coordinating complex movements or projects or solving complex problems (https://www.yourdictionary.com/logistics) or the planning, implementation, and coordination of the details of a business or other operation (Dictionary.com). Therefore we can obviously apply processes applicable to logistics, such as quality assurance and quality control measures, to the pedagogical system. Supply chain management, while being associated with logistics, is defined separately in [28], supply chain management directly impacts product quality and the overall profitability of a company. For these reasons, quality control in the supply chain is critical for maintaining a competitive edge in the marketplace and reducing operating costs. Without quality control, waste becomes prevalent beyond a tolerable amount. Adapting from [27], to define LSCM in terms relevant to the pedagogical system of HEIs, logistics refers to what happens within an HEI, including the development, purchase and delivery of curriculum materials, the packaging for presentation to students of those curriculum materials (which I have defined as knowledge units), and the delivery of those knowledge units to students, to create a final product: the "Knowledge Product". Supply chain management refers to a larger network of outside organisations and stakeholders that work together to deliver the final product; a knowledgeable graduate leaving the HEI with the knowledge product created in the pedagogical system, to all stakeholders, defined in this chapter as including not only the students, but also other important stakeholders in the education process, who include future employers, students' families, society at large, and government.

18. Why refer to logistics and supply chain management here?

Supporting the assumption that we can see the pedagogical system of an HEI in terms of LSCM, there is a significant volume of research available on the application of "agile", "lean" and "leagility" from which we can learn: [29–31]. We can learn, for example, about quality circles and their relevance to product development and production line processes from the Toyota Way and apply this concept to the pedagogical system; an adaptation of a definition of quality circle [32], appropriate to education, is "A quality circle is a participatory teaching and learning technique that enlists the help of both teachers and students in solving problems related to their course of study". Circles are formed by teaching academics working in cooperative groups, or teaching teams, and students working together in learning teams, to discuss problems of quality and to devise solutions for improvements, as well as supporting more effective and efficient teaching and learning processes. In general, the literature on LSCM research is rich with information on "agility", "lean management" and "leagility", thus being an excellent and informative source of information appropriate to the pedagogical system.

19. What are "agile pedagogy", "lean education" and "leagility"?

The concept of agile education emanates from the concept of "organisational agility", which has been described by [33] and modified here to suit HEIs: "*... the ability of an HEI to renew itself, adapt, change quickly, and succeed in a rapidly changing, ambiguous, turbulent environment*". Elsewhere, the definition of organisational

agility, adapted for HEIs, is *"The capability of an HEI to rapidly change or adapt in response to changes in the demand for graduates with particular skills. A high degree of organizational agility can help an HEI to react successfully to the emergence of new competitors, the development of new industry-changing technologies, or sudden shifts in overall market conditions"* [34]. Agile practices have been adopted and adapted into, agile software development [17], and agile LSCM [28–30], agile shipbuilding [35] and in agile education [7], which, together with the concepts of lean thinking, is now being seen in combination, termed as leagility.

20. The pedagogical system as a logistics and supply chain management problem

Most, if not all, current LSCM practices can be valuably applied to education: quality management, quality circles, supplier networks, just-in-time manufacturing, eradication of waste in the manufacturing processes under the heading of lean management, adaptability of processes under the heading of "organisational agility", with these latter two approaches now being combined under the heading of "Leagility" [5].

To set the scene for these proposals, a quick definition of each of these three terms is appropriate. In general terms, "agile" means *"fast, quick decision making and behaviour to meet changing circumstances, implying timely decision making"*. This is seen as being "effective". Lean, or lean management, is stated as *"get the right things to the right place at the right time, the first time, while minimizing waste and being open to change"*. This is "efficient", "leagility" is a combination of these terms, to imply *"overall efficacy, effective and efficient, behaving in both an agile and lean manner"*.

I define the concept of "pedagogical agility", adapted from [36]: "The capability of an HEI to rapidly change or adapt in response to changes in the market for Graduates. A high degree of pedagogical agility can help an HEI to react successfully to the emergence of new competitors, the development of new industry-changing technologies, or sudden shifts in overall market conditions".

Further, in the HEI situation, we define "Leanness" as developing a pedagogical value stream to eliminate all waste, including time, motion and transportation, and to ensure the continuous and levelled delivery of a schedule of knowledge enhancement. *"A lean HEI understands knowledge value and focuses its key processes to continuously increase it. The ultimate goal is to provide perfect Knowledge to the graduate through a perfect value creation process that has zero waste"* (definition adapted from [37].

Similarly, "Leagile" is a hybrid of lean and agile systems, and a paraphrased definition, also derived from [38] "Leagile has emerged, in HEIs, as an answer to the problem of reconciling long curriculum lead times with unpredictable technological and employment changes". These definitions of LSCM, drawn from the Internet, have been modified to be applicable to HEIs, particularly by referring to "students" rather than "customers".

21. What is the "product" that is produced by an HEI?

Where this question may have been addressed previously in the literature, there has been an assumption that the "customer" of the HEI is the student (who is, after all, paying to attend). We can imply this from [39] *"What 21st-century employers need … is singular, creative talent nurtured by a higher education system that offers opportunities for everyone"*: "talent" implying a person with talent.

For our purpose, I will define the product being produced by any HEI as "Knowledge", or, to give it a more "production line" relevant identity, the product being produced by HEIs is a "Knowledge Product" constituting the entirety of the knowledge gain designed into the course of study, or the "production line" activity, by way of the sub-assemblies, parts and components that we refer to as knowledge units, or, in simple terms, curriculum components. The "customers" of HEIs must be seen as being a part of the greater society, extending this to include not only the students, but also other important stakeholders in the education process, who include future employers, students' families, society at large, and government.

By defining what is being produced by the HEI on the education production line as the knowledge product, and not the student or graduate as the product, allows the idea of the students themselves being active production line process workers, together with their teachers and other curriculum providers and participants. By providing a research-oriented environment, rather than a passive learning environment, students' research outcomes and inductive realisations can create students themselves as curriculum providers, or "production line workers". It also allows the knowledge product to be seen as the product that is designed, and produced by a process of adding sub-assemblies and component parts; the knowledge units, at each work station, which in today's conceptualisation is essentially the subject taught in a semester.

In a LSCM-based pedagogical system, knowledge units will be much smaller, much more focused, and continuously available to the students passing along the pedagogical system "production line". A knowledge unit can be a 2-week intensive classroom or seminar situation, or an online e-learning video series, or an entire MOOC presentation, or YouTube video, or a 20-minute video on a particular topic. This definition provides the freedom to deliver curriculum content, or knowledge, in a variety of ways, and which can be sourced from anywhere, or developed in-house. Also, by offering knowledge units online, with AnyWhere/Anytime/AnyDevice access, students remote from the university, or who reside in remote locations ad are not able to attend a campus, can access the content, thus pursuing their course in their own time, at their own location.

In [2], the scenario now facing individual universities includes significant competition from many different sources, with courses being available from 3rd party online providers, and the Internet enabling the extensive availability of e-learning materials, the most illustrious of which are so-called Massive Open Online Courses (MOOCs) offered by prestigious universities and world-leading lecturers, online. Udemy offers many and varied online courses, and it seems that this is a low-cost source of academic material, competing for enrolments, thereby being competition for traditional providers of educational material (https://www.udemy.com/). Also, our experience in selecting textbooks for subjects over 3 decades includes seeing offers by textbook publishers to provide a complete, "canned" curriculum, requiring the teaching academic merely to set up the projector and present the slides provided. Confronted with these situations, together with the extraordinary developments and advances in computing, information technology, and communications technology, by huge organisations such as Google, Amazon, Microsoft, Tesla, and Facebook *inter alia*, one can only wonder at what HEIs can, and must, do to remain viable and relevant, even to continue to exist in anything like their current form.

Discussions published in many papers on or around this scenario [7] seem to be mostly concerned with improving the efficiency and effectiveness of the operational and administrative processes of HEIs as they currently operate, and do not address the actual education processes; the pedagogy. In our view. HEIs must make radical changes to their academic systems, what we have termed here as their pedagogical system. New ways to source curriculum materials, new ways to present those materials to students, new ways for students to access that material and learn,

and new ways to assess the learning outcomes, are required. It cannot be a mere reorganisation of current processes, but a radical change in almost every aspect.

The solution is seen here to be a new model of HEI pedagogy that considers HEI's as competitive, commercial enterprises whose education processes are appropriately seen as being akin to LSCM processes. To set the scene for these proposals, a quick definition of each of these three terms is appropriate. In general terms, "agile" means "*fast, quick decision making and behaviour to meet changing circumstances, implying timely decision making*". Lean, or lean management, is stated as "*get the right things to the right place at the right time, the first time, while minimizing waste and being open to change*", and, finally, "leagility" is a combination of these terms, to imply "*overall efficacy, effective and efficient, behaving in an agile and lean manner*". We must also consider the lean product development paradigm, as espoused in a variety of books on lean product and process development [39, 40].

22. The pedagogical production line

Figure 2 illustrates the overall pedagogical production line, with incoming students, usually from secondary schools, proceeding through a course (along the production line) until graduation (finished product) and employment. **Figure 2** also includes illustrations of the equipment and tools available to the process line workers: the academics in charge of controlling the system and the students' activities, and indeed the students themselves. The tools (Office®, YouTube®, Linux, Open Office and so on, DBMSs, and a plethora of other Internet-based tools available for social interaction, information searching and extract, graphics; in fact, a vast number of tools. The figure also illustrates the variety of curriculum providers. So we see the incoming "raw material", the progress through the process line to the finished product, the graduates who are now the bearers of the knowledge product, who venture into the world, usually to gain employment.

Figure 3 more readily illustrates the knowledge package along the pedagogical production line. The "brain" of course represents the knowledge product, first introduced by incoming students, developed in their past schooling. The knowledge product is then developed and extended by the addition of the knowledge units to ultimately result in the final knowledge product that meets the total knowledge requirements of the course of study.
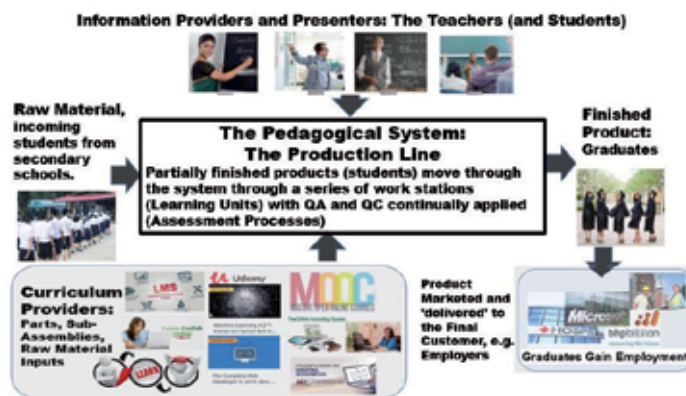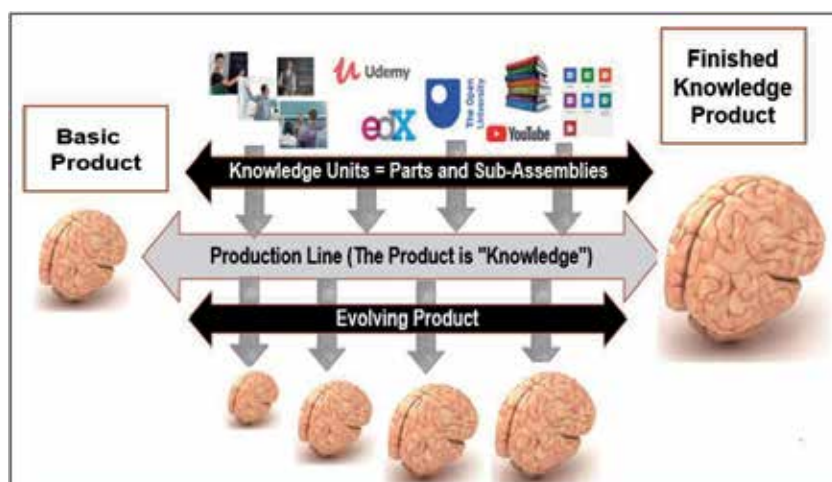

Figure 2.
The pedagogical production line.

Figure 3.
The evolution of the knowledge product.

23. Changing roles of teachers and students demanded in the twenty-first century

The roles of both "teachers" and "students" are changing; changes wrought by the need to deliver information in higher education institutions as cheaply and efficiently as possible, in what is now a highly competitive environment, and for students to pass successfully through their course as quickly and efficiently as possible. Internally, within the nation, education has developed into a significant cost to the national budget, and as an export industry, is now worth billions to many countries. Fast-track learning in a leagile pedagogical system is also of significant benefit, socially, economically and educationally, to students. Teachers must become mentors, curators of information sources, and learning leaders, and students become researchers and self-learners.

To summarise my view of the role of both teachers and students in the foreseeable future, I make the following recommendations:

1. Teaching academics would be styled "Learning Leaders" with significant responsibility to ensure students achieve at a high level by constant monitoring, mentoring, assisting and evaluating students' progress by forming teaching teams to achieve these responsibilities.

2. Students would work in learning teams for mutual learning support and adopt both learning and teaching roles within the learning team.

3. Both teachers and students must achieve a very high level of digital literacy, sufficient to be able to adopt a significant set of digital resources and aids, and have the ability to proficiently teach the students these Internet-based skills and to be able to communicate between themselves and with students, especially remotely.

4. A high level of blended teaching and learning based first and foremost on Internet technology; e-learning and social media will become prominent, with traditional lectures and formal tutorials abandoned in favour of a substantially e-Teaching environment and the use of social media, with face-to-face learning between members of the teaching team and student project groups.

5. Blended teaching methods also include:

- Project-based teaching and learning,

- The flipped classroom,

- Scrum in the classroom,

- Connectivism theory

6. Pedagogy terminology that should be understood and applied:

- student centred learning,

- "Agile classrooms", "agile pedagogy",

- "Lean higher education"

- "Hybrid learning", "technology-mediated instruction", "web-enhanced instruction"

7. For assessment practices, terminology includes:

- Student self-assessment

- Peer assessment

- Longitudinal assessment

- Formative assessment

(This is not a tutorial on each or any of these methods or terminology, but the reader should use these as keywords for a literature review of each of the concepts. You will be surprised at how much good information and research is available).

24. The digital classroom

A recent article in [41] reported on the adoption of a fully digital approach to Teaching and Learning at a leading Thai university, King Mongkut's Institute of Technology Ladkrabang (KMITL). The following quotes are especially relevant in the context of this proposal:

"Classes today do not have to take place in classrooms—a back-end and central-ised university network can significantly yield fruitful learning opportunities and simultaneously reduce the university's daily operation cost".

"In the future, KMITL plans to offer total online courses so that its students, and students at KMITL's partnered universities, or agencies cooperating with KMITL can remotely attend classes from wherever internet is available in the world".

… students, school personnel and society as a whole have been tremendously and rapidly transformed with the actualisation of online learning, allowing modern-day students, particularly in universities, to study whenever and wherever the like as long as they can access learning sources.

We may add [9, 10] here as references to two Australian universities with similar intentions displayed in their building design and teaching and learning spaces, and in their intent on the actualisation of online learning and the roles of modern-day students attending an HEI.

25. The "roomless" class

The "classroom" as we know it, with serried rows of desks or benches where students sit and listen to a "chalk and talk" lecture, or, in K-12 schools, the teacher at the blackboard, should now be abandoned.

Rooms that are learning spaces that are not used to present classes in the usual way are needed. Two news items from the ABC in Australia [9, 10] report on the situations that have arisen in two Australian universities. The provision of appropriate learning spaces benefits students' social interaction, allows them to advance their own knowledge gain at their own pace, meet their fellow learning team members, exchange views and information, quietly view online content which they have selected themselves for that period without being required to sit for 2 hours in a lecture hall to find out what they need to learn. Learning spaces have actually been provided in university libraries for decades, called carrels which, in my experience, were large enough for 4 students to get together and exchange ideas and work together. The twenty-first century learning spaces may need a large TV set, a fast Internet connection, devices for attaching to the Internet, for students who cannot afford their own, and licences for a variety of software products, or may just need a Wi-Fi connection. The teacher in the twenty-first century learning space needs to plan, coordinate, oversee and assess the students learning, relying heavily on Internet technology.

26. Connectivism theory at work

Connectivism has been described as "acquisition of actionable knowledge, where an understanding of where to find knowledge may be more important ...", or "Connectivism provides insight into learning skills and tasks that are needed for learners to flourish in a digital era" [42], and when accurate, up-to-date knowledge is the aim of all connectivist learning activities [43]. Also, Connectivism relates to a community as being "the clustering of similar areas of interest that allows for interaction, sharing, dialoguing, and thinking together".

In [44], there is a description of a practical classroom activity illustrating connectivism theory in the classroom. The activity is considered to be a learner-centred teaching activity where the teacher introduces the topic to be studied and oversees the students at work, but the work is done by the students. The students work in groups (learning teams), each group required to conduct research (project-based learning), applying software tools such as PowerPoint or Prezi® for presentations (see Prezi.com for a software tool for preparing dynamic presentations, using a blogging platform such as Blogster, preparing a video using iMovie or similar technology, perhaps a video recorded on a smartphone.

I personally have contemplated the use of documentaries on TV as learning experiences. I have recently viewed a BBC documentary entitled "Wild Patagonia". As I watched, I saw the Andes Mountains (let us go and learn more about the mountain ranges of the world), I saw a chain of volcanoes (let us do a project on volcanoes), I was interested in the lush western areas and the dry eastern deserts (let us do a project on rain shadows and deserts of the world

and how they arose), I saw strange animals that evolved in that area (let us do a project on evolution). These look like excellent social studies and geography projects.

Movies depicting Napoleonic battles ("Austerlitz", or the "Battle of Leipzig"/"Battle of the Nations") or documentaries on the Vietnam War, World War I and II, the Korean War, the American Civil War, make history come alive, and the lessons can be extended into political and social issues. Historical documentaries such as "The Tudors" and "Mary I of England" ("Bloody Mary") offer great opportunities for further research into British history, the Papacy, religion, albeit with a Euro-centric aspect, but there are also similar documentaries on Indian history, Japanese history, Dutch colonialism in Indonesia, etc.

Not all curriculum in all academic study areas can be learned in this way, but the principle is there. Knowledge units, Internet-based student-led research, project work, use of all kinds of media now allowed by the Internet and smartphones: these are examples of the application of connectivism theory, together with the flipped classroom paradigm, student-led learning, teachers as mentors, curriculum gathered from multiple sources (even learning the tools available on the Internet is excellent practical education).

27. The teacher-as-researcher research paradigm

This chapter has been based very much on the personal opinions, experiences and anecdotal evidence gathered by the author. I refer readers to the literature that supports this approach as being an appropriate qualitative research approach, termed variously The-Teacher-as-Researcher, and Education Action Research [45, 46], and also Educational Action Research [47, 48].

28. Conclusion

Higher Education Institutions are commercial institutions in that they charge fees for a service that is provided to students. The service is provided in what is termed here the pedagogical system. The stakeholders in the pedagogical system include teachers, students, graduates, employers, students' families, curriculum providers and the government which has a political and financial stake in efficient and effective pedagogy. HEIs are subject to competitive pressures and accountability in service provision as is any commercial organisation.

As commercial organisations operating a process that needs to be agile and lean, or "leagile", HEIs need to look to LSCM processes in which agile, lean and leagile paradigms are now well entrenched, as they are in many industries that produce a product.

The Internet has proven to be both a major disruptive force and a significant enabler of research and education. It is now imperative that both teachers and students achieve a high level of digital literacy. Teachers need to become proficient at the use of a variety of Internet-based tools for searching, illustrating, communicating, developing educational materials, and applying these in the pedagogical system.

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The Purposeful Teacher

Kirsi Tirri

Abstract

In this chapter, a purposeful teacher is introduced as a goal in teacher education for the twenty-first century. Purposeful teacher is defined as a teacher with moral purposes. Purposeful teachers are ethical professionals who have both freedom and responsibility to make pedagogical decisions in the best interest of their students. Purposeful teaching is discussed in the Finnish context with some examples of the current educational challenges. The purpose profiles of Finnish student teachers are presented to inform the needs for purpose education for future teachers. Different approaches to teach purpose in the teacher education and in schools are introduced with examples from different countries. The didactic approach used in moral education is presented as a case-example to teach purpose in teacher education. The aims of twenty-first century learning call for purposeful teachers who actualize and model lifelong learning in their profession. A growth mindset in learning and ethical skills is introduced as important assets in the professional growth toward purposeful teaching.

Keywords: purpose, purposeful teaching, teacher ethics, Finland, twenty-first century skills

1. Introduction

The aim of this chapter is to discuss the importance of purpose in teachers' professional conduct. Many authors have emphasized the ethical and vocational nature of teaching profession [1, 2]. In this chapter, teaching is presented as both a profession with professional competencies and a vocation with personal meaningfulness. The discussion is presented in the context of Finnish teacher education, where teachers are ethical professionals [3]. Finland was the first Nordic country to establish the ethical codes for teachers in 1998. During the last 20 years, these codes have been revised and updated. In these codes, the basic values for teaching profession are established. These values are dignity, truthfulness, fairness, responsibility, and freedom [4].

In 2017, Teachers' Union in Finland established the Comenius' Oath for teachers that would support teachers in their work and provide a concrete reminder of the ethical foundation of their profession [5]. Teachers in Finland are trusted and they can practice pedagogical freedom in their work if they observe the legislation and the curriculum guidelines. Also, the schools in Finland have a lot of freedom in curriculum development and pedagogical approaches. The Finnish principals and teachers rank among the most autonomous education professionals in Europe [6] who are responsible for supporting students' holistic development. The national core curriculum provides only the basic values and goals for schools to develop their own curricula and instructional approaches [7]. This kind of freedom can be

identified as a challenge, for example, related to curriculum integration, especially for the subject-teachers in Finland [8].

To be able to meet the challenges and requirements of ethical professionals, teachers need a long-term goal and commitment to teaching; in other words, they need to be purposeful in their work. The term "purpose" refers to "a stable and generalized intention to accomplish something that is both meaningful to the self and of intended consequence to the world beyond the self" [9]. In this definition, purpose can be conceptualized along three dimensions. The dimensions are intention, engagement, and prosocial reasoning [10]. All these dimensions are needed to fulfill the criteria of a purposeful teacher. Purposeful teachers are ethical professionals with long-term commitment to their students and educational goals they intend to meet in their teaching. In this work, they need to find meaningful purposes for themselves that at the same time go beyond themselves and serve their students and school communities.

The purposeful teacher is always an ethical teacher with moral purposes. Our research data with both Finnish elementary and secondary school teachers indicate that teachers share certain features in their pedagogical thinking and teaching practice [11]. We have identified these collective features in teachers' thinking to be field-invariant epistemological standards guiding their practical knowledge [12]. The sense of vocation provides teachers with a sense of personal identity and fulfillment referring to meaningful purpose in their work. Moreover, teachers have reported that they cannot separate personal and professional aspects in their practical reasoning. Their own moral character informs their moral reasoning, having an influence on how they interact with their pupils and providing long-term purposes in teaching. The professional rules and principles related to teachers' ethical codes also help them in their pedagogical practice with their students and colleagues. Our empirical studies with both elementary and secondary teachers indicate that teaching is both a vocation with a deep personal commitment and a profession with clear rational principles. Purposeful teachers are those who can combine the vocational and professional aspects in their work.

In the following subsections, the current challenges in teachers' work in Finland are discussed with the empirical findings on the purpose profiles of our future teachers. Some methods to teach purpose in teacher education and in schools are introduced with a more detailed example from Finnish teacher education. Finally, purposeful teacher is identified as a goal for teacher education in the twenty-first century.

2. Purposeful teaching in Finnish context

The Finnish education system and teacher education are internationally recognized as high-performing without control and standardized testing [13]. The status of the teaching profession is very high in Finland, and teachers are trusted and respected. Beginning in the 1970s, the professionalism of teaching has been supported by an academic university education, with more and more trust given to teachers during the 1980s and 1990s through the decentralized curricula.

The teaching profession also attracts good students year after year. This is a unique advantage to teacher education in Finland by comparison with other countries [3]. Teacher education in Finland has become increasingly research-based during the last 40 years. The master's degree given to both elementary and secondary teachers with thesis provides opportunities for teachers to continue their studies in the doctoral programs that Finnish universities have in their teacher education departments. The professors and lecturers in these programs teach future teachers

with scientific competence. They teach what they research and research what they teach. The results of their studies are published in leading international educational journals and monograph series. The faculty has pedagogical competence and most of them have been educated as teachers themselves. These developments have made Finnish teacher education very visible and competitive judged by international standards; for example, we have more international students applying to our doctoral programs than we can admit [3]. Lavonen lists several reasons why teaching is an attractive occupation in Finland. In addition to the academic status of teachers, they enjoy collaboration with and receive support from school leaders and communities. The strong culture of quality and the key role of teachers in assessment activities also support the professional ethos of teachers. Decentralization allows teachers to consider local contexts and to address diversity among the students they teach in flexible ways [13].

Ethical sensitivity can be identified as a core competent for Finnish teachers in teacher-student relationships [4]. The best interest of a student is guiding the teacher to understand different needs of all kinds of learners and especially those who need special care and guidance. With the youngest learners, the teacher needs viewpoints from the other adults who know the child in need. This means that the teacher works together with the adults responsible for the child. Team-teaching, cooperation between home and school, and other experts are needed to meet the diverse educational needs of students. Many times, the needs require the view of a school psychologist or some other expert. These relationships make real the African saying "It takes a whole village to educate a child."

The professional attitude is present in the ethical codes in the teacher's relationship to his or her work [4]. Accordingly, teachers should attend to their tasks responsibly and develop their work and evaluate their own activities. Teachers are also supposed to accept their fallibility and to be ready to revise their viewpoints if needed. Lifelong learning is necessary also in the ethical domain. Teachers in Finland have the right and responsibility to personal development and care. Teachers are also expected to respect their colleagues as members of a profession. A constant challenge in their work involves finding the balance between personal autonomy and the work community. In schools, teachers are advised to rely on the principles of mutual aid and support, understanding, and accepting the individuality of their colleagues. Teachers work together with the home, the surrounding community, and the larger society. This means that teachers have a relationship to the society in large and their work also guides the future of our society [4].

The current challenges in Finnish teacher education include the growing diversity among students in our schools and the expectations of teachers to meet the varied needs of diverse learners. This will demand high-level ethical and pedagogical skills to cope with these new challenges. Also, the learning environments are changing and teachers need to master the rapidly changing developments in information and communication technology to function in the same learning environments as their students. Teachers should also be able to prepare their students for the future by teaching them the twenty-first century skills. These skills can be defined as an integration of the knowledge, skills, attitudes, and values that all young people of our time are required to have [14].

In the Finnish national curriculum, seven areas of core competencies related to twenty-first century skills have been proposed, including: (1) thinking and learning to learn; (2) cultural competence, interaction, and self-expression; (3) taking care of oneself, managing daily life; (4) multi-literacy; (5) competence in information and communication technology; (6) working-life competence and entrepreneurship; and (7) participation, involvement, and building a sustainable future [7]. All these new learning goals call for purposeful teachers who have internalized the

ethical nature of their profession and who find personal meaning in meeting the needs of their students.

Finnish teacher education has been mostly influenced by the German tradition and lately more and more influences have been drawn from Anglo-American thinkers [15]. Hopmann defines "The German Didaktik" with the idea that any given matter or subject in school can represent many different meanings, and many different matters or subjects in school context can open any given meaning. But there is no matter or subject without meaning, and no meaning without matter or subject [16]. Meaning is created when the content is presented in a classroom with some pedagogical method the teacher has decided to use; meaning making becomes possible for students when teachers provide room for their pupils to reflect upon what is meaningful to them, and how the issues presented relate to their aims and goals in life. In this pedagogical process, the goals of each student are addressed with the pedagogical aim to foster purpose development.

The goal of Finnish teacher education is to educate pedagogically thinking teachers who can teach the contents of the curriculum and at the same time reflect on the meaningfulness of their teaching. Teachers should be able to take the perspective of their students and ask if their teaching is helping their students to find purpose in their studies and in their lives. We know that in Finland, both in-service teachers and student teachers find similar purposes in their teaching, regardless of the subject they teach [15, 17]. Finnish teachers are ethical professionals who want to make sure that their students master the basic knowledge of the subjects they teach. Moreover, they are responsible for the holistic development of their students, with the aim to educate moral citizens.

The Finnish studies on teachers' purpose [18] among the student teachers (N = 372) indicate that most of them (N = 144, 39%) can be called as *dabblers*, teachers who have some kinds of ideas related to purpose in teaching, but they have not found anything permanent that would inspire them in their teaching and they are still searching for that. According to Damon, these kinds of teachers do not think about teaching with the future perspective. They are not committed to any goals with a long-term involvement. They try different teaching methods and educational philosophies without deep reflection on the goals and purposes of their teaching. They do not have a long-term or steady plan in their work that could function as a framework for purposeful teaching. In Damon's youth studies, majority of American young people belonged to this group [19]. The open attitude among this big group of student teachers provides opportunities for teacher educators to discuss and reflect on purpose with them and support them in finding long-term purposes for their teaching.

The second profile (N = 90, 24%) among the Finnish student teachers was the *purposeful*. These were teachers who had found a long-term goal and commitment in teaching [18]. According to Damon, purposeful teachers are those who have clear goals for their teaching; the goals are long-term ones and give meaning to themselves, and the teachers can reflect on the goals and explain the reasons for them. These goals inspire the teachers in their everyday life and sustain them in the teaching profession. These teachers also have clear educational visions they have actualized in their teaching. The amount of purposeful student teachers in Finland is a very encouraging finding. It reflects the high quality of the student population in Finland admitted to teacher education departments. Most of this group viewed teaching both as an ethical profession and as a calling [1, 2].

The teachers who expressed neither purpose to their teaching nor showed any signs that they were seeking purpose were *disengaged* (N = 84, 23%). Like the disengaged group in the American studies, some of these Finnish teachers might be detached, while others confine their interests to hedonic or ego-boosting pursuits

that show little concern for the world beyond the self. We also found some differences among different teachers. The student teachers of religious education most often demonstrated a purposeful profile, while student teachers of mathematics and science were mostly profiled as disengaged, indicating that they had no strong purpose-related visions, activities, or confidence in teaching purpose [18, 19]. The smallest group (N = 54, 15%) among the student teachers in our study was the *dreamers*, who were still searching for their teaching purpose. The dreamers in Damon's definition are teachers with ideas about purposes that they could have, for example, innovative teaching methods, but they have never put their ideas into practice. They can be very idealistic in their thinking, but they have never done anything in life to test those ideas in their teaching. The teacher educators should acknowledge these kinds of teachers and guide them to actualize their ideas toward purposeful teaching [18].

3. How can purposeful teachers be educated?

Teachers all over the world need education in the specific competencies that make purposeful and purpose-oriented teaching possible. In a comparative study among youth, both American (N = 386) and Finnish (N = 336) students (13–19 years of age) acknowledged their need for teachers' support in finding purpose in their studies and in their lives [20]. A special issue on purposeful teaching around the world presents several articles from different countries on this topic giving concrete examples on culture-specific approaches to purpose education [21, 22]. For example, in Brazil, action research approaches are adapted with student teachers by using problem-based and design thinking methods to promote purposeful teaching [23]. In American context, service-learning is regarded as one of the most promising pedagogical approach for supporting purpose development of student teachers [24]. Also, in Korea, service-learning approaches are used in colleges to enhance purpose education among their students [25]. In a comparative study comparing Iranian and Finnish teachers' competence to teach purpose, the Iranian teachers taught their students reflection on purpose in life and plans, whereas Finnish teachers emphasized the importance and consequences of one's actions and decisions. In Finland, teachers' own purposefulness was related to their competence for teaching purpose [26]. Teachers in Finland, Iran and China all rated their competence to teach purpose highly, but Chinese teachers rated their competence much higher than their students rated them [27].

In her book, Malin argues that purpose can be taught in the classroom when the curriculum is responsive to students' questions and interests. She identifies purposeful projects as pedagogical tools to engage students in deeper learning about topics that are intrinsically motivating and personally meaningful to them. According to her, projects are meaningful when the content and activities are responsive to students' questions and curiosities. Projects become meaningful as students engage intentionally with the questions, ideas, or materials posed by the teacher, and the teacher shapes the project according to student's emerging ideas and interests as they take shape. Purposeful projects have the following characteristics: they are inquiry-driven, they are sustained over time, they involve reflection throughout, they are collaborative and community building, they elevate students' social awareness, and they set high expectations for students [24].

Tirri and Kuusisto [28] present a case-study approach to promote purposeful teaching in teacher education. The core of purposeful teaching in the classroom context is based on the didactic relationship between the teacher and the student's relation to content. To be able to create a didactic relation in learning, a teacher

needs to illuminate the meaning of the subjects she teaches to her students [17]. Purposeful teaching takes place when a teacher creates conditions for learning that help students to find personal meaning from the contents and subjects taught. The practical case method for purposeful teaching, the didactic approach, is modified from the methods used in moral education [29].

This specific case method has been used as part of a course in didactics, which is taught at the University of Helsinki at the beginning of all student teachers' (approximately N = 600) pedagogical education. The student teachers who take this course include kindergarten teachers, elementary and secondary school teachers, and adult education teachers with different subject specialization. The process starts with the writing task in which the student teachers write a story of a personally meaningful teaching or learning experience from their school years or university classes, the most significant one they can remember. The aim of the writing task is to help the student teachers to remember a personally meaningful case related to teaching and engage them in reflecting on it. Students' reflection is assisted with concrete questions related to the real-life teaching or learning experience they described. The emotions and situational details should be recalled with the help of questions to be able to relive them as authentic as possible.

The writing task is followed by a group work in which the students reflect on their purposeful teaching or learning experiences more systematically. The aim of this group work is to guide the student teachers to pay attention to the content and meaning of teaching. They should also think the ways a teacher used to illustrate the meaning of the contents. After that, students share their experiences and discuss situational factors and relational characteristics of the case. Helpful questions are provided to help the students in their analysis and reflection on the case. Following this phase, the student teachers discuss together all the purposeful teaching and learning experiences identified and issues related to them. The individual work is widened to collective reconstruction and argumentation of the cases with peers and teacher educators. This would help the students to deepen their arguments and gain a broader understanding of the cases presented. Other student teachers' experiences help individual students to build a holistic understanding of the case and situate it in a wider pedagogical and educational context. In best circumstances, some new understanding of the case emerges. The group work is followed by a reflective essay written individually by the students which is returned to the teacher educator. A case example of one teacher's reflection on her purposeful teaching experience is reported in details in [28].

4. The needs of twenty-first century learners

The purposeful teacher needs to adapt to the needs of twenty-first century learners. One of the twenty-first century skills students should learn in school is competence in information and communication technology. Finland has taken an active role since 1990 in implementing information and communication technology (ICT) in schools and educating teachers for their pedagogical use [3]. In the twenty-first century, Finnish education is emphasizing digital teaching and learning even more and investing in improving our teachers in this area [13]. This new emphasis is a challenge for many Finnish teachers and students. A purposeful teacher pays attention to her students' abilities, gender, prior knowledge, motives, and expectations to make learning meaningful for them. The skills related to information and communication technology differ a lot among students and teachers. Some of the students are more advanced in their use of information and communication technology than the teacher and others might not have any prior experience in this

area. The teacher needs to find new pedagogical approaches to teach technology for the diversity of learners and differentiate teaching according to students' abilities. The teacher might need in-service education to update her knowledge and skills and find purpose in learning new twenty-first century skills herself. The new information and communication technology has the potential to make learning more meaningful to some students, for example boys who do not have the patience to follow traditional teaching in classrooms or for talented students, who can advance faster in their studies. The needs for twenty-first century learners are the starting point for teacher's search for purposeful teaching.

5. Purposeful teachers for the twenty-first century

The twenty-first century curricula in Finnish schools continue the trend of individualism and make room for purpose education for diverse learners in all school subjects. Education for purpose can be included for the school-based curricula integration projects in all grade levels. In teacher education, we want to educate teachers who can reflect on the educational purposefulness of their teaching from different points of views and help their students to find a purpose in their lives [20].

Lifelong learning is one of the aims for twenty-first century teaching and teachers need to find a meaning in their work that would be sustainable for the years to come. In the search of long-term purpose for teaching, teachers can profit from the growth mindset identified by Dweck [30]. Mindsets are beliefs that teachers hold about their most basic qualities and abilities. In a growth mindset thinking, a teacher believes that her cognitive skills, teaching competencies, and personal strengths can be improved. A teacher believes that purposeful teaching is possible with hard work and effort and she is ready to invest her time to reach that goal. A teacher with a fixed mindset thinking believes that her cognitive skills and teaching competencies cannot be improved and her personal strengths are also static. This kind of thinking prevents the teacher from finding a long-term purpose for teaching that would sustain in the changing world. Growth mindset is a key to lifelong learning and creative thinking [31].

The twenty-first century skills include an open-minded attitude from a teacher, a growth mindset, to learning to make it possible to be continually challenged to learn new things and guide the students in their search for purposeful learning. Purpose and growth mindset in learning needs to be complemented with ethical skills to combine excellence with ethics [32]. The ethical nature of teaching profession and the values underlying teachers' ethical conduct provide excellent ground for teachers' professional development with the goal of growing to be a purposeful teacher.

Notes

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A learner-centred curriculum provides space for the learner to be actively involved in knowledge production and learning. Such can only happen if the learner's confidence is boosted by a feeling of control and ability to manage his or her progress towards acquiring a qualification. The twenty-first century teacher must create an environment that not only supports the Four Pillars of Learning but also leads to learners being allowed a voice to ask pertinent questions. The teacher should be able to guide the student to full physical and mental maturity and should help to develop critical thinking, and the students should be encouraged to practice the truth and have self-respect and respect for other people. This can happen if the learner is afforded the opportunity to self-accept. If the learners fail to do so, they are likely to have lack of confidence, which will lead to lack of independence.