New Pedagogical Challenges in the 21st Century

Contributions of Research in Education

*Edited by Olga Bernad Cavero
and Núria Llevot-Calvet*

NEW PEDAGOGICAL CHALLENGES IN THE 21ST CENTURY - CONTRIBUTIONS OF RESEARCH IN EDUCATION

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Meet the editors

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Contents

Preface

In a global context characterized by globalization, diversity and transformation, the societies of the 21st century are subject to uncontrollable social, cultural, political, economic and technological changes. These changes have also affected the School which, in order to face new challenges, has to redefine its role. In the context of this complex society, full of paradoxes and uncertainties, with children and young people who have to face new and different problems from those of previous generations, the need for a transformation of education systems and schools is demonstrated by the studies presented in this book.

Schools have to respond to new challenges. They have to prepare young people for future work that at present is hard to imagine, give them tools to construct civic identities in increasingly complex and plural multicultural societies, and make education a comprehensive and continuing lifelong experience, as the UNESCO Report 'Rethinking Education' (2015) underlines. Digital, social, intercultural and emotional competences should be assessed, not only cognitive and technical skills, necessary for a full life in the 21st century. Teachers must be prepared to successfully face these challenges. But this process must be developed with the complicity and collaboration of families, teachers and other educational agents, within the framework of a school open to the community and the environment.

In addition, it should be noted that universities are not unaware of these changes and university teachers are beginning to introduce methodological and organizational changes in their classes. Some of these actions are developed in the following chapters.

This book is a compendium of chapters prepared by authors from different centers and universities in the five continents. This fact gives it a special relevance by showing under different approaches and context, the original and leading contributions of international academics on the role of Education and Pedagogy in the 21st century and the new challenges they have to face. Some of these chapters are the result of personal reflections from a comprehensive review of the literature on the subject, others show the state of the issue, in a particular country or region. Others works are the result of empirical research in determined context.

Some authors focus their contributions on the organization, structures and methodologies changes, implemented in some schools, because the needs and the social functions, or at least some of them, have changed significantly. Some global and integrated practices are showed. Other authors refer to an inclusive and cooperative education to ensure sustainable learning. In this diverse and changing context, new roles of teachers and students are redefined. And one of the current demands is to know the characteristics of the ideal school and of the ideal teacher, and the factors that define him. Finally, other authors focus their research on the university teaching in various disciplines.

We distribute these chapters into three sections. The first section, entitled "Education in The 21st Century: A Change of Paradigm?", offers a selection of theoretical or empirical studies, on the role of education and pedagogy in the 21st century, the social functions of the School, inclusive education, intercultural education, environmental education, education in values, Innovative teaching methods, the role of ICT, among others.

The second section, entitled "Teachers and Students in a Changing World" focuses on the re-definition of teachers and students roles, the students' perception about education and school, the teaching action, the skills, aptitudes and attitudes of a good teacher, among other aspects.

Finally, the last section, denominated "Miscellanea", offers us other topics that will also arouse the interest of the reader, such as, the variable of gender in higher education, and the application of Pedagogy in the teaching of other disciplines such as those related to the field of health and mathematics.

We appreciate the opportunity to present this book that summarizes serious and rigorous studies, the result of analysis or personal reflection. This book gathers some interesting and innovative approaches, in forms and contents, which will facilitate the scientific advance of the disciplines of Social Sciences and Humanities. In a complicated environment for education and for research, some multidisciplinary proposals that offer a holistic vision of education and teaching in the 21st century will be designed. New valid knowledge based on solid and well-founded background will also be provided. It will help us to reflect on the role of education and school and to build a freer society. Avant-garde contributions in actual research and teaching, which are amalgamated in this book, cannot cease in their functions of lighthouse.

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Education in The 21st Century: A Change of Paradigm?

Pedagogy of the Twenty-First Century: Innovative Teaching Methods

Aigerim Mynbayeva, Zukhra Sadvakassova and
Bakhytkul Akshalova

Additional information is available at the end of the chapter

Abstract

In the twenty-first century, significant changes are occurring related to new scientific discoveries, informatization, globalization, the development of astronautics, robotics, and artificial intelligence. This century is called the age of digital technologies and knowledge. How is the school changing in the new century? How does learning theory change? Currently, you can hear a lot of criticism that the classroom has not changed significantly compared to the last century or even like two centuries ago. Do the teachers succeed in modern changes? The purpose of the chapter is to summarize the current changes in didactics for the use of innovative teaching methods and study the understanding of changes by teachers. In this chapter, we consider four areas: the expansion of the subject of pedagogy, environmental approach to teaching, the digital generation and the changes taking place, and innovation in teaching. The theory of education, figuratively speaking, has two levels. At the macro-level, in the "education-society" relationship, decentralization and diversification, internationalization of education, and the introduction of digital technologies occur. At the micro-level in the "teacher-learner" relationship, there is an active mix of traditional and innovative methods, combination of an activity approach with an energy-informational environment approach, cognition with constructivism and connectivism.

Keywords: didactics, digital generation, innovative teaching methods, environmental approach to teaching, pedagogy

1. Introduction

The new century introduced significant changes in didactics and teaching methods. Pedagogy of the twentieth century differs from the pedagogy of the twenty-first century. Since the beginning of the twenty-first century, there have been many changes in the development of

national and world education. The most observable phenomenon is now the Internetization of society and the penetration of digital technologies into learning. The modern generation of schoolboys is known by the name digital, socially digital [1], and generation Z [2]. Knowledge is the transition from acquiring knowledge through reading, from the teacher's monolog to visual perception, or discussion in the classroom.

Digital technologies change our way of life, ways of communication, way of thinking, feelings, channels of influence on other people, social skills, and social behavior. As Myamesheva states, "the high-tech environment - computers, smart phones, video games, Internet search engines - reshape the human brain" [3].

The theoretical changes in didactics and pedagogy lie behind the most obvious tendency. Pedagogy in the domestic science was redefined from the "science of upbringing, teaching and learning" to the "science of upbringing and education." The subject of the twentieth century pedagogy was "upbringing" [4] (in Kazakh—tarbie, in Russian—vospitanie, in Deutsch—Bildung). Tagunova et al. writes: "Upbringing in the broad pedagogical sense is a purposeful influence of the society to prepare the younger generation for life. Upbringing in the narrow pedagogical sense is a purposeful influence on the development of specific personal qualities…" [5]. The subject of the twenty-first century pedagogy—the category "education"—has expanded the scope of meaning and understanding. Competence and personal-oriented approaches have been introduced.

Here is how the post-Soviet tendencies of reforming education in the studies of Silova, Yakavets are generalized. There are some commonalities between countries in terms of the "post-socialist education reform package" [6–8], "a set of policy reforms symbolizing the adoption of Western educational values and including such 'travelling policies' as student-centred learning, the introduction of curriculum standards, decentralization of educational finance and governance, privatisation of higher education, standardisation of student assessment, and liberalisation of textbook publishing" [7-8]. This interpretation coincides with the assessment of the Russian researcher Romanenchuk "in the 2004 concept of the development of education 'westernization' of education (the transfer of the Western model of education to Kazakhstan soil) is embodied in full" [9]. On the one hand, one can agree with such assessments, and on the other hand, it is necessary to take into account the powerful tendency of the revival of Kazakh schools and the ethno-pedagogical foundations of education. Kazakhstani scientist Akhmetova defines the six reasons for modernizing education somewhat different: the quality of education, globalization and internationalization, politicization and the creation of a knowledge society, new teaching technologies, marketing and financing [10]. Kazakhstan is a young independent state that turned 25 years old. Therefore, the reforms of Kazakhstani education in the early twenty-first century were aimed at building a national education system as an attribute of independence. At present, Kazakhstan occupies leading positions on the dynamics of educational reforms in the post-Soviet space.

In this chapter, we consider four areas: (1) the expansion of the subject of pedagogy, (2) environmental approach to teaching, (3) the digital generation and the changes taking place, and (4) innovation in teaching. These changes lead to the renewal of teaching methods.

The purpose of the chapter is to summarize the current changes in didactics for the use of innovative teaching methods and study the understanding of changes by teachers.

2. Material and research methods

The sources of research were the works of Kazakhstani, Russian and foreign scholars on didactics, textbooks on Pedagogy of the twentieth century, UNESCO recommendations on the development of teaching strategies.

On the one hand, the section overviews, and on the other hand, the results of a practical study on the use of innovative teaching methods by teachers, and understanding of their strengths and weaknesses are presented.

Changes in didactics in the twenty-first century have been studied in the following areas, which lead to the active use of innovative teaching methods:

- the features of the expansion of the subject of pedagogy—"education" have been analyzed;

- approaches in modern foreign didactics on teaching the digital generation of students have been analyzed and generalized, taking into account their specific features;

- attention is focused on pedagogical innovation as a direction for the development of didactics;

- a survey of teachers on the using of traditional and innovative teaching methods has been conducted.

Therefore, in the first part of the chapter, the analytical and system approaches were used, and the theoretical changes of modern pedagogy were generalized. Another question is, how much do teachers take a positive attitude to innovation, accept them, and improve their skills? To answer this question, a questionnaire was compiled, and a survey was conducted among teachers who had been trained in the Republican Institute for Advanced Training of Teachers and Educators. The selection of respondents was carried out by random sampling. The survey was conducted in May–June 2016. The survey was conducted jointly with Esenova. The following questions were asked in the questionnaire:

(R1) Do teachers use innovative teaching methods?

(R2) What, in the opinion of teachers, are the advantages of innovative teaching methods, what are their shortcomings?

(R3) Why, for what purpose do teachers use innovative teaching methods?

(R4) Did the teachers learn how to use ITM? How did they learn (options: through qualification improvement courses with state payment, independently or at their own expense)?

(R5) According to teachers what is the parity of applying traditional and innovative teaching methods? Has the teacher formed a meaningful structure for updating teaching methods-an innovative culture of the teacher?

The results of the survey help to understand: first, how dynamic is the improvement of teachers' pedagogical skills and mastering of innovations in teaching. Second, is the upgrade process systemic? And are the conditions created for this by the state? Or do the teachers update the pedagogical skills of the ITM independently?

3. Literature review

3.1. Traditional didactics

Modern pedagogy from the "science of upbringing and training" has become a "science of upbringing and education." The category "education" for the twentieth century has been transformed and expanded. Didactics since the days of Jan Amos Komensky has been understood as a theory of learning. In Soviet didactics, education was understood as a "learning outcome" [11], "the process and result of mastering the system of scientific knowledge and cognitive skills …" [4]. That is, obtaining an education had an expression in obtaining a certificate of education or a university diploma.

In modern textbooks on pedagogy, for example by Bordovskaya and Rean, education is understood broader [12]: (1) as a process and result of learning, (2) as a society value, because society spent more than 8 millennia to build a cumbersome educational system; (3) the value of the individual, since modern man spends more than 15 years of his life on education and profession; (4) a social institution with its own powerful infrastructure, economy, educational programs, management bodies, didactic systems, and so on.

Theories of education consider the interaction not only of the pupil and the teacher (the micro level of interaction) but also of the interaction of the state and the education system, the social groups of pupils and teachers, parents and pupils, parents and school, schools and public organizations, schools and religions, schools and economic, social development of society. This is the level of macro influence of education on society and society on education. That is why didactic theories and problems are considered not only from the point of view of the internal relations of the teacher and the student, but as a didactic and at the same time social environment, open to innovations and interference, dynamic changes. Therefore, forming subject competencies, we simultaneously design the formation of social, communicative competences, life competencies.

3.2. Environmental approach to teaching

In the 1970–1980s of the twentieth century in the USSR, the process of teaching began to be stated from the point of view of the activity approach in the domestic textbooks on pedagogy. The learning process as teaching and learning has components: purpose and objectives, content, methods, teaching tools, learning forms and results. When planning the lesson, we design these components. This theory is connected with the L. Vygotsky's theory of educational activity, the theory of developmental learning of L. Zankov, V. Davydov, I. Lerner, M. Skatkin, Z. Kalmykova and others [13, 14].

Since the twenty-first century, the environmental approach to learning has been actively used. According to Manuilov [15], we define the functional environment as something, among which the subject resides, whereby his way of life is formed, which mediates his development and averages the personality.

In the 1990s of the twentieth century, the Italian scientist Rizolatti discovered mirror neurons. Mirror neurons are neurons of the brain that are excited both when performing a certain action,

and when observing the performance of this action by another person. Such neurons were reliably detected in primates, their presence in humans, and some birds, is confirmed. These neurons play a key role in the processes of imitation, empathy, imitation and language learning [16].

According to the Albert Bandura's theory of social learning, human behavior is not so consistent. Prior to the theory of A. Bandura, according to the theories of J. Piaget and others, it was believed that abilities and attitudes were formed as they grew up [17]. Therefore, as we are accustomed to believe, some consistency is inherent in actions. A. Bandura believes that human behavior is not so consistent. Rather, it depends on the circumstances. Human behavior is more determined by the existing situation and its interpretation by a person than by the stage of his development, character traits or personality types. From A. Bandura's theory of social learning, one can conclude that education is figurative, discrete, can be carried out eventually, situationally.

In the environmental approach, information and energy become important categories. During the lesson, there is a dynamic exchange of information, knowledge, and energy between the teacher and the student. In our opinion, the basis of the synergetic approach in pedagogy is manifested here. According to the theory of self-cognition, according to Mukazhanova, the value of "love" is understood as the energy exchanged between people [18], for example, mother and her child. Positive attitudes in study and occupation, the positive energy generated by the teacher, set a special positive spiritual atmosphere. It is interesting that here one can turn around to the Academy of Plato history. As you know, the word "platonic love" comes from "spiritual communication between teacher and student." Therefore, in didactics, it is better to use more developing, positively motivating methods and technologies of education, which will create a development environment that is positive for development. The teacher becomes the facilitator of the child development. Therefore, art-pedagogical, creative methods of teaching are recommended.

Moreover, the environment must be saturated with both information and positive energy. The teacher himself plays a big role if he is a significant personality for the student.

This scientific direction in pedagogy connected with the social environment and the socialization of the individual has resulted in a new disciplinary science—social pedagogy. It deals with other mechanisms of socialization—imprinting, imitation, identification. Thanks to the development of psychology, the theory of upbringing develops coping strategies, coping behavior, and the concept of a lifestyle.

3.3. Digital generation

In the modern school, we observe serious changes related to informatics and the introduction of multimedia in the educational environment. Modern scientists—teachers, sociologists, futurists also reflecting—speak about a new generation of students, that is, schoolchildren of the twenty-first century. This generation is "Next", generation Z (theory of generations developed by Neil Hove and William Strauss), the digital generation, the social-digital generation (developed by L. Hietajärvi, K. Lonka).

Let us consider the foreign studies of scientists who demonstrate modern changes and new approaches in the development of didactics. Scientists D. Tapscott, D. Oblinger, B. Brdička [19] note serious changes in perception and learning process (**Table 1**).

Twentieth century generation	New generation
- Books → reading	- Display—visual perception
- Current step, gradual movement	- Nonlinearity
- Single tasking	- Multitasking
- Linear approach	- Hyper media
- Perception through reading	- Iconic perception
- Independence	- Connection
- Ambiguity	- Cooperation
- Passive school, as requirement	- School as game
- Discussion	- Warning
- Reality	- Fantasies
- External technology	- Internal technology
- Fact awareness	- Know how to find something necessary

Table 1. Generation development [19].

Hietajärvi et al. [1] echoes it and so articulates changes in the new generation, called the "social-digital generation" (**Table 2**).

Note the importance of all the changes. Let us dwell on the fact that "The educational space is expanding beyond the classroom" [20]. At present, having agreed in advance with the students, we can use the Internet video resources during the explanation and during the group work assignments, and we can allow students to use smart phones and phones when preparing a group solution.

Hietajärvi et al. call the modern generation as a generation with "social and digital participation" and write that "social and digital technologies are integrated systems of technology,

Socio-digital participation	School practices
- Flexible use of digital media	- Traditional media, e-mail
- Multitasking	- Linearity and sequence
- Intellectual ICT tools	- Pure mental performance
- Internet searches	- Limited textbook content
- Socio-digital networking	- Off line working, F2F
- Working on screen	- Paper and pencil
- Making and sharing in groups	- Individual performance
- Extended networks	- Closed classroom community
- Knowledge creation	- Knowledge acquisition

Table 2. Differences between the modern practice of teaching at school and the new "social-digital generation" [1].

social media and the Internet that provide a constant and intensive online interaction with information, people, and artifacts"; Social and digital participation is "a new concept of the practice of informal, socially-digital mediated participation" [1].

According to Soldatova's and Zotova's research, changes occur in the memory, attention and thinking of the digital generation. "The accessibility of almost any information at any time from an early age changes the structure of mnemonic processes. First of all, it is not the content of any information source in the network that is remembered, but the place where this information is located, and more precisely the 'way', method how to get to it. The average concentration duration of attention compared to that which was 10-15 years ago, decreased ten times. A new phenomenon is clip thinking. It is based on fragments processing of visual images, rather than "on logic and text associations" [20].

Teachers have diametrically opposed opinions on how to respond to changes: from conservative (leaving everything as it is, schoolchildren need to be taught as in the last century) until the need for a complete restructuring of the education system. Our position is based on the principle of ambivalence, the continuity of "tradition → innovation," the need for active research of the phenomenon of electronic and visual culture, and the study of the influence of visual culture on the personality of a schoolboy. Digital technologies change our way of life, ways of communication, way of thinking, feelings, channels of influence on other people, social skills, and social behavior [21].

Schoolchildren and students have more short-term memory; therefore, new methods of fixing knowledge in long-term memory and development of competencies are needed. Educators are aware of the problem of forming school children's cogency of thinking. It is interesting to understand the "superficial" and "deep"/"deep" approach in obtaining knowledge. "Learning the text by heart, ignoring the meaning, understanding - is known as a superficial approach, and an integral and critical assessment, the study of the material is known as a deep approach." "Superficial learning is a superficial approach; it is the reproduction of knowledge, the teacher-regulated training, passive epistemology, dual vision, and the consumption of knowledge. Deep approach, knowledge transformation, self-regulatory learning, active epistemology, relativistic views, and knowledge building approach can lead to deeper levels of learning" [1].

These issues put forward new requirements for the teacher and his professional activities. Teachers need to learn new information and digital technologies more actively. In addition, new research is needed in the field of the psychology of perception and thinking with the active use of e-learning. Practical training of teachers for the use of ICT and digital resources, the formation of digital literacy, the inclusion of such courses in educational programs for teachers is necessary nowadays.

When formulating courses, it is possible to demonstrate the continuity of the development of didactics on the concepts "behaviorism → cognitivism → constructivism → connectivism." Brdička systematized the development of didactic bases of the twentieth century in 2011 (**Table 3**) [19].

As is known, the theory of behaviorism as a behavioral approach appeared in the 1920s. It has been used in education for a long time. Schools of the eighteenth and nineteenth centuries relied on the foundations of a behavioral approach (although the theory of behaviorism has not existed yet). In the 30s of the twentieth century, the formation of the cognitivism process

	Behaviorism	Cognitivism	Constructivism	Connectivism
Knowledge source	Experience	Mind and experience	Reason	Connection
Principle	Black box—external behavior reflection	Knowledge in the brain	Activity, individualization	Knowledge as collective product
Motivation	Positive/negative support	Signs, diploma	Own interest	Interest supported by community
Process	Revision sensitive experience	Knowledge interpretation	Knowledge structuring	Active net cooperation
Direction reps	Skinner, Thorndike, Pavlov, Watson	Vygotsky, Bruner, Gagne, Ausubel	Bandura, Piaget, Bruner, Dewey, Papert	Siemens, Downes

Table 3. Connectivism as a new didactic basis in the foreign theory of education [19, 22].

began in Soviet education. The Soviet didactic system was mainly built on the use of both theories. Further in the second half of the twentieth century, the theory of constructivism (social constructionism) was formulated. Social reality has a dual nature. On the one hand, it has objective meanings, while on the other hand, it has subjective meanings. Each person builds a social reality around himself. An important tool of social reality is language. Through language and communication, a person builds for himself a field of knowledge and understanding. The processes of socio-psychological construction of the society through personal activity and activity are considered.

In education, the course of social constructivism is associated with the socialization of the individual in society, the formation of socialization skills in each person, and the learning of self-structuring of knowledge by students. The approach is connected both with the construction of the learning environment, including communicative and construction of knowledge through it. Currently, the theory is actualized by the use of active and innovative teaching methods in education (brainstorming, case study, group teaching methods, etc.). We emphasize that the sequence of the appearance of theories, in principle, does not disprove the previous one, but complements, as it were, built on the previous ones, then penetrates into the previous ones and partially changes their use. This understanding is illustrated by the modern methodological principle of the science—the principle of addition and complementation. As in school, at the university, we use these trends when building the learning process. Note that the course of social constructivism echoes the environmental approach in pedagogy.

A new direction for the emerging theory was put forward by Siemens and Downes in connection with the development of communication network and new opportunities for their use in teaching [22]. Knowledge is obtained through interaction with the network community. Of course, such a process of obtaining knowledge, on the one hand, can be characteristic of an already prepared or adult person who is able to critically evaluate, analyze, choose, and construct knowledge [21]. That is, it has some foundation of knowledge. At the same time, the students of secondary schools themselves demonstrate active assimilation of knowledge and skills in this way—through networks. Therefore, in our opinion, we predict that there will be

a penetration of this theory gradually into lower-level classes (even initial ones). For junior high school students and teenagers, networks have become commonplace, so their networking skills are much better developed than those of educators.

In Kazakhstan, which has Soviet traditions in didactics, the content of education was built on the basis of theories of encyclopedism, formalism, copyism (in Russian—ekzemplyarizm), and others. They are described in the textbook of didactics [23]. In the Western science of education, the transition from behaviorism to cognitivism and constructivism is considered. The transition to the dominance of theories of constructivism requires the active use of innovative teaching methods. It is clear that changes in reality dictate the need to move away from encyclopedism and cognitivism in learning.

In education, the understanding of learning outcomes has shifted from knowledge, or knowledge and skills, to the formation of competencies. If knowledge is formed consistently, then competencies develop in a complex manner. Competencies are difficult to form in one lesson, so we can talk about "learning strategies" implemented for a certain length of time. The learning strategy integrates both approaches and principles, the direction of development, and the methods and types of instruction. Training strategies are aimed at competence—the expected results of education. Strategies for active, innovative teaching, project-oriented, and playful learning can realize the concepts of constructivism and connectivism.

3.4. Innovation in training

According to Volov, "In the Middle Ages in educational institutions the ratio of the number of pupils to the holders of knowledge was about ten ($I \approx 10$); With the introduction of the pedagogical system Ya.A. Comensky, the ratio of the number of pupils to the teacher reaches hundreds ($I \approx 100$); modern innovative technologies increase the factor of educational technologies in tens of thousand times ($I \approx 100,000$)" [24]. The development of innovations in education is served by the scientific discipline "Pedagogical innovation." It helps in the development, implementation and dissemination of innovations in teaching practice. We give several of its provisions.

Innovation is a phenomenon that carries in itself the essence, methods, techniques, technologies, and content of the new. Innovations (from Latin in - in, nove - new) - the introduction of a new, the introduction of novelty. According to Taubaeva and Laktionova: "The innovative process is a complex activity in the formation and development of the content of education and the organization of a new" [25].

Innovative methods of teaching are methods of teaching that involve new ways of interaction between "teacher-student", "teacher-student", a certain innovation in practical activity in the process of mastering educational material.

There are two types of "new": "purely new" - first created, is at the level of adequate discovery, the establishment of a new truth; "new", having a mixture of the old, more precisely, consisting of a layer of the old, a layer of the new, and so on [25]. We propose one more typology of innovations in learning (technologies, methods, and techniques):

- an absolute innovation (absolutely new technology);

- a modernized innovation (significantly improved technology);

- a modified innovation (slightly improved technology);

- an innovation, technology introduced to a new territory (e.g., trainings for the RK, credit technology of training for Kazakhstan);

- an innovative technology of a new field of application [26].

Features of innovative training: (1) work on anticipation, anticipation of development; (2) openness to the future; (3) constant inconsistency, in other words, the non-equilibrium of the system, in particular the person himself; (4) focus on the personality, his development; (5) the obligatory presence of creativity elements; and (6) partnership type of relations: cooperation, co-creation, mutual assistance, and so on.

All innovations in pedagogy, according to I. Derizhan, unite:

- the belief that the human potential is unlimited;

- the pedagogical approach is aimed at mastering reality in the system;

- stimulation of nonlinear thinking;

- they are based on the hedonistic principle that is, based on the enjoyment of learning, the joy of achievement, the pedagogy of success.

- the mobile role-playing field of the teacher—the teacher simultaneously teaches and learns from the student [27].

Firstly, the very **methodology of innovative learning** is built on a personal-oriented approach. In the Western literature, it is called student-centered learning. Secondly, it synthesizes synergistic, systemic, competence, dialogical and activity-oriented, culturological, information and technological, environmental, and other approaches. Third, it is possible to determine the laws and principles of the innovation process in education and the basis of the innovative culture of the teacher. The methodology of innovative teaching is reflected in the training manual.

According to Podlasy "The teaching methods set the pace of development of the didactic system - the training progresses as quickly as the methods used allow it to move forward" [11]. In practice, there is a transition from reproductive methods of teaching to innovative ones.

We have collected more than 300 innovative teaching methods and technologies for more than 20 years of experience [26, 28]. Traditionally, ITM (according to M. Novak) is divided into nonimitative (brainstorming, pedagogical exercises, and discussions) and imitative (nongame, e.g., case study, training, etc., and gaming—business role-playing, blitz games). The collection includes a didactic description of the algorithms for applying the methods and the most interesting examples of student fulfillment [29]. They include: brainstorming, training, role-playing and business games, blitz games, various methods such as "Puzzles",

then "Domino", "Historical picture", "Fish bone", "Spider online", "Car"," Basalt Columns ", "University - 2050", "School-2030 "," School - 2050 ", lessons "Creativity hour"," Talk show "," TV digest ", in the" Walt Disney Circle ", "Walt Disney's Three Stools"; On "soap bubbles," "Conceptual fan," "Collective record", "Palm," "Train," "My Constellation," "I - it me," critical thinking techniques, "Six pairs of action shoes" and "Six hats of thinking" by Edward de Bono, an educational project, a fairy tale creation, etc.

For example, the method "Historical picture" was born after a trip to Dresden and acquaintance with the famous wall tile panel "Procession of the Princes", created in 1904–1907. It depicts 35 Margraves and Kings of Saxony, who lived from the twelfth century to the beginning of the twentieth century and in the procession they are presented consistently. Students are invited to study the historical information about this panel and to come up with their own version of the historical picture of the collection of the procession, for example, the scientific school of the theory of behaviorism with brief "reference signals" about the positions of scientists. The student does not need to possess special artistic skills; he is allowed to use any improvised material such as copies of biographical references with photos, glue, paper, markers, etc. The work can be performed in groups, as an independent work, or at a seminar (with a given homework to study the theory of behaviorism). In conclusion, presentations are made. Students not only learn the sources as much as possible but also learn to generalize, logically and artistically, visually, creatively represent solutions, present their decisions, work in a team.

In 2010, UNESCO recommended the following teaching strategies for the twenty-first century: experiential learning, storytelling, values education, enquiry learning, appropriate assessment, future problem solving, outside classroom learning, and community problem solving [30].

The active use of innovative teaching methods by teachers is a necessity nowadays. The greater the strategies and methods of teaching the teacher has, the more interesting, diverse it conducts classes, better motivates the student's cognitive activity, shapes the experience of solving nonstandard problems, promotes in-depth training and the steady assimilation of technology of practical activity.

A good teacher constantly improves his didactic skills, selects, and develops new methods and technologies of teaching.

A change in the teaching of pedagogy can be observed in the gradual addition of subsections of textbooks on the pedagogy topics on innovative methods of teaching (comparative **Table 4**).

These textbooks were used in universities to train teachers on the territory of the USSR and post-Soviet countries, recommended by the Ministry of that time. The analysis of the content was carried out on the basis of comparing the names of topics in the section "Didactics" of textbooks on pedagogy of the twentieth and twenty-first centuries (textbooks representing the decade). It shows the relative stability of the subjects of the section "Didactics" by keywords: "the process of learning," "the content of education," "methods and means of teaching," and "forms of education." Textbooks include the topic "Innovative Learning Technologies" in the 21st century. Thus, modern students are studying innovative methods and technologies of teaching.

Criteria analysis	Textbook 1 (1950–1960s)	Textbook 2 (1980s)	Textbook 3 (1990s)	Textbook 4 (modern twenty-first century)
Textbook	"Pedagogy" [31]	«Pedagogy" [4]	«Pedagogy» [11]	«Pedagogy» [32]
Content of "Didactics" section	1. Fundamentals and principles of teaching	5. Subject, main categories and didactic tasks	10. Essence of teaching process	16. Essence of teaching process
	2. Education content	6. Learning process, its methodological and theoretical basis	11. Didactic systems and models of teaching	17. Regularities, laws and principles of teaching
	3. Methods of teaching	7. Education content	12. Teaching aims	18. Education content
	4. Teaching at school	8. Methods of teaching	13. Classification of teaching regularity	19. Methods and means of teaching
		9. Forms of education	14. Content of teaching process.	20. Forms of teaching
			15. Using computer in education process	21. Diagnostics and control in teaching
				22. Innovative pedagogic technologies of teaching

Table 4. Comparative table of the section "didactics" of textbooks on "pedagogy" for pedagogical universities.

For teachers of the older generation who have graduated earlier from universities, advanced training is carried out (according to the Law of the Republic of Kazakhstan "About Education" at least once in 5 years) [33].

Currently, most schools in Kazakhstan are actively pursuing reforms, including the active use of innovative teaching methods by teachers. Next, we turn to the consideration of the results of the questionnaire of teachers on the use of innovative teaching methods.

4. Results and discussion

4.1. Survey of teachers on the use of innovative teaching methods

Many scientists study the active implementation of innovations in training. According to Isayev, only 14% of teachers have an actively positive attitude to innovation, they initiate the introduction of new technologies in the educational process and promote them. Twenty-three percent are positively attuned and 9% have an emotionally positive attitude to pedagogical innovations [34]. While 18% of teachers have frustration-negative, 26%—passive-negative, and 10% actively negative attitude toward innovation. T.I. Shamova divides teachers in terms of the degree of motivation for innovation in the school into leaders from 1 to 3%, positivists from 50 to 60%, neutrals—30%, and negativists from 10 to 20% [35]. The introduction of innovative teaching methods is actively conducted in Kazakhstan. Let us conduct a survey among teachers—whether they use innovative teaching methods, which see the strengths and weaknesses of ITM application.

In the joint questionnaire held by K. Esenova, 66 teachers participated in the qualification improvement institute, and up to three priority answers were allowed.

(R1) Do teachers apply ITM? 92.42% of the teachers admit that they use innovative teaching methods. In our opinion, this is a high figure. At the same time, it can be assumed that since teachers came to improve their qualifications from different regions of Kazakhstan, they were a priori motivated to update the teaching methods, to apply ITM, and have some experience in applying them. In addition, the promotion of the ITM application is widely conducted in the Kazakhstani education system. Therefore, we can assume that this result is in part similar to Shamova's data on the existence of teachers due to various reasons that are negatively related to innovations in training.

(R2) Advantages and disadvantages of ITM. Teachers recognize the strengths of teachers recognize the strengths of the application of innovative teaching methods (ITM): the activity of students in cognition and activity (51.52%), students' interest and practical orientation (39.93%), meaningfulness and strength of the acquired knowledge and competences (36.36%), the feasibility of fulfilling the tasks of the students (33.33%), development of creativity (30.30%), support of interest and direction in depth for strong students (15.15%).

The risk zones indicated by teachers: a reduction in the amount of knowledge for a limited time of the lesson (54.55%), training and material support/equipment, markers, stickers …/(48, 48), class

noise, reduced discipline (42.42%), and labor time of training (36.36%). Note that in urban schools, the usual class consists of 25–33 schoolchildren, and the teacher does not have an assistant.

These indicators are a good illustration of the teachers' understanding of the sampling of existing difficulties in the application of ITM.

(R3) The purpose of ITM application. The main goal of the ITM application, according to the teachers' evaluation, is to increase the interest of students—92.42%, active involvement of students in educational work—69.7%, development of the creativity of the student 60.61% (**Figure 1**). As a result of ITM application, the students develop personality qualities—activity, communicativeness, competence, oratorical ability, democracy. The constant use of innovative teaching methods develop in pupils, according to teachers' assessments, activity (78.79%), communicative (69.7%), competence (66.67%), oratory (30.3%), and democracy (15.15%).

(R4) Training of IMT teachers. Most teachers were trained in innovative teaching methods (81.82%). Methodical updating took place through qualification improvement courses (78.79%) and special courses at universities (54.55%). Besides, teachers attend training at their own expense (45.4%) and are engaged in self-education (30.3%). Indirectly, these results show the systematic nature of the state's work on updating the methods of teaching. At the same time, 30–45% of the selected teachers independently update innovative methodological competence, which also shows the active position of teachers in improving the skills in this sample. The results are in accordance with the data on the studies of Isaev and Shamova (46% positively related and 50–60% positivists enter the data area).

(R5) The parity of applying traditional and innovative teaching methods. On the question of determining the parity of accepting traditional (reproductive) and innovative methods of teaching, teachers responded as follows (**Figure 2**).
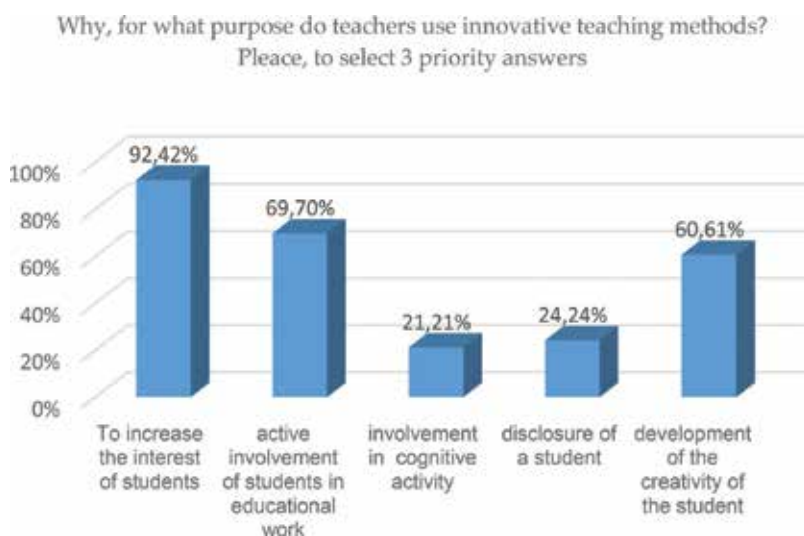
Figure 1. Why, for what purpose do teachers use innovative teaching methods?.

In your opinion, what should be the parity of the application of traditional and innovative teaching methods?

Figure 2 bar chart:
- 10% traditional (reproductive) teaching methods and 90% innovative teaching methods — 12,12%
- 30% traditional (reproductive) teaching methods and 70% innovative teaching methods — 21,21%
- 40% traditional (reproductive) teaching methods and 60% innovative teaching methods — 27,27%
- 50% traditional (reproductive) teaching methods and 50% innovative teaching methods — 30,30%
- 60% traditional (reproductive) teaching methods and 40% innovative teaching methods — 9,09%
- 70% traditional (reproductive) teaching methods and 30% innovative teaching methods — 0,00%
- 90% traditional (reproductive) teaching methods and 10% innovative teaching methods — 0,00%

Figure 2. Determining the parity of applying traditional and innovative teaching methods.

It is gratifying to note that there has been a turn to the need for more innovative methods of teaching to be used by 90.91% of teachers. This is the result of reforming the system of Kazakhstani education as well as the work of courses for improving the qualifications of teachers.

To the last question: "Did you have a meaningful structure for updating the methods of teaching-an innovative teacher culture?" 45.5% of teachers answered "Yes", 39.4% in part, and 15.1% answered "No" (**Figure 3**). This system includes both participation in advanced training courses, participation in ITM training, self-education—reading books, attending classes of innovative teachers.

Figure 3 pie chart:
- In part - 39,4%
- Yes - 45,5%
- No - 15,2%
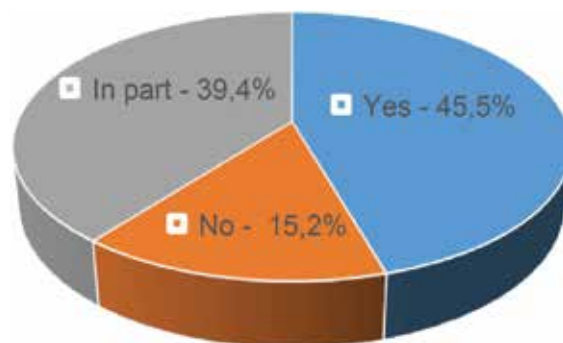
Figure 3. Teachers answer.

In our opinion, it is the innovative culture with the motive and the ability to update the pedagogical tools, competences, knowledge, and values that should become the component of the skill of the modern teacher. Such a system can be multicomponent, as teachers themselves point out, associated with the reflexive methodological competence of teachers.

5. Conclusion

Changes in didactics and pedagogy of Kazakhstan and post-Soviet countries have two major directions. The first is associated with a change in ideology and the acquisition of independence by countries. The second is connected with the world trends in the development of education: the introduction of a competence approach, informatization, internetization, globalization, and diversification of education.

Teacher, on the one hand, subjectively decides on the design of the content, methods, strategies, and technologies of education, but the implementation of educational reforms depends on him. On the other hand, the state and society broadcast the pedagogical culture, the value aspects of teachers' thoughts through professional, vocational training, and the system of raising teachers' qualifications.

The subjectivity of consciousness and professional activity is one of the principles of modern pedagogical science. That is, the application or nonuse of innovative methods depends on the personality of the teacher, his methodological competence, pedagogical skills. The task of the teacher training system is to actualize such a need, to form methodological competence. The task of the school and universities is to encourage and stimulate the development of teachers' and students' creativity. An important task of the teacher is to constantly reflect and develop his pedagogical potential; then the student influenced by the example of the teacher will be an active and competent person.

Acknowledgements

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Technology-Mediated Pedagogies for Skill Acquisition toward Sustainability Education

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Additional information is available at the end of the chapter

Abstract

The era of digital technologies has heralded increasing opportunities for technology-mediated pedagogies (TMPs). TMPs as effective means for enhancing acquisition of skills have been widely reported. Sustainable living may be attained by focusing on accessibility, availability, affordability, accountability, and last but not the least, acquisition of knowledge and skills. This study explores the means and ways of realizing the objective of sustainability education by deploying TMPs. Technology and skill acquisition are important means for realizing the concept of sustainable education. Sustainable development goals have targeted 14 goals. The theme of ensuring quality education is included as digital technologies and global inclusiveness. Regional disparities in education continue to be a problem that hinders economic development. Achieving the targets of "Education for All" will contribute to meeting Goal 4.7 that envisages to ensure that all learners acquire the knowledge and skills needed to promote sustainable development by 2030 and Goal 4.c that envisages to increase the supply of qualified teachers.

Keywords: technology-mediated pedagogies, skill acquisition, sustainability education, sustainability skills, TECHSUS skills

1. Introduction

Acquisition of skills for sustainability education has emerged as an important learning outcome of education. Sustainability has been adjudged as a reckoning force contributing to enhancing quality and life span in planet Earth. Education as a means for attaining sustainable living was realized ever since the concept of sustainability gathered momentum in the year of its inception in 1972 in *The Ecologist's A Blueprint for Survival*. It acquired further significance

when the UN's Stockholm Conference called for making modern civilization sustainable. "Sustainability" as implied in Brundtland Commission in 1987 strives for increasing the life span of the planet—material and immaterial—by responsible living. The Earth Summit in 1992 established "sustainable development" as the most important policy of the twenty-first century.

It has been realized that effectiveness of sustainability education is determined not only by mere attainment of concepts, but also by level of applied knowledge and acquisition of skills. Sustainability education focused on acquisition of skills ensures relevant and responsible learning. Studies have revealed that the level of competency attained by learners after completion of course is not adequate. In this context, it is necessary to employ and deploy alternative instructional strategies intended toward skill acquisition.

Since, sustainability strives to develop a community of global citizens, the skills that define global citizenship may be considered for sustainability also. Thereby, it can be deduced that sound and effective sustainability education is obtained by developing skills of critical thinking, ability to argue effectively, ability to challenge injustice, inequitable distribution, respect for people, cooperation, and conflict resolution.

Technology-mediated instruction strategies have been found to be effective in skill acquisition of reading, writing, communication, collaboration, and negotiation. Technological devices such as wireless laptops, electronic decision boards, handheld computing, video devices, computer assisted problem-solving systems, electronic video games, and web-based-mediated instructional systems too have been found to augment learning.

Needless to add, technology offers opportunities for enhancing capacity building in sustainability. However, the role of technology-mediated pedagogies for realizing sustainability education needs to be explored further. For imparting the right sustainability education, focus needs to be on the acquisition of skills.

The chapter will highlight the skills for sustainability education and explore the technology-mediated instructional strategies for skill acquisition for sustainability education.

2. Technology-mediated pedagogies

Instructional strategies that make use of educational potential of technology may be referred to as technology-mediated pedagogies (TMPs). TMPs imply use of technology for teaching and learning. In the last decade, there have been alternate instructional strategies attempted in the learning place. Innovations and inventions have always found a way to the classrooms; first, these have been tried out as experiments and eventually finding permanence as an essential attribute for teaching and learning. The same could be described about digital technologies. Digital technologies starting with the PCs have now transformed classrooms from computer labs to handheld devices [1].

TMPs have contributed to innovations in offering digital-based teaching and learning opportunities. This, in turn, has had an impact on educational needs, both in terms of the content and the delivery of educational services, and has also put pressure on decision makers to acquire

new technologies [2]. At the same time, different forms of TMPs are emerging with various digital learning solutions for practitioners and beneficiaries. The wealth of studies of effective teaching conducted over the last few decades has now clarified the basic nature of the many process variables involved in teaching ranging from discrete observable behaviors to more global and more subjectively assessed qualities [2]. Classroom practices play an important role in the transaction of curriculum. All educational policies and curricular objectives are being realized within the four walls of the classroom. Classroom practices involve and incorporate classroom dynamics, classroom communication, classroom dialogue, and teaching-learning process.

Teachers should model use of information and communications technology (ICT) to demonstrate usefulness and appropriateness for collaboration, acquisition of resources, analysis and synthesis, presentation and publication, and development of basic skills in students [3]. Only teachers competent in digital literacy and TMPs can transfer these skills to the students they teach. Teachers need to acquire higher levels of functional literacy and lifelong learning skills and be able to demonstrate well-developed socioemotional intelligence, useful for negotiating and collaborating within the global village and be fluent in use of ICT for a variety of purposes [4]. Learning skills enable learners to acquire new knowledge and skills, connect new information and existing knowledge, analyze, develop habits of learning, and work with others to use new information among other skills [5]. This will contribute to enhancing the employability of learners and minimize the gap between skill availability and skill requirement.

TMPs provide new opportunities for people to learn at their own convenience and pace. This shift in education from an instructor-centered to a learner-centered focus requires learners to be motivated and self-directed. New technologies offer less time to gather information and more time on reflection on its meaning [5].

The various theories of learning point out the educational potential of technology and confirm that Techno pedagogies comply with various theories of cognitive learning. Some of the most prominent theories include: sociocultural theory (based on Vygotsky's intersubjectiveness and zone of proximal development), constructivism theory, self-regulated learning, situated cognition, cognitive apprenticeship, problem-based learning (Cognition and Technology Group at Vanderbilt), cognitive flexibility theory, and distributed cognition [6–11]. Each of these theories is based on the same underlying assumptions that learners are active agents, purposefully seeking and constructing knowledge within a meaningful context.

The learner engagement in authentic tasks in authentic contexts using authentic tools and assessed through authentic performance becomes a reality in the context of TMPs. Opportunities for peer, mentor coaching, and scaffolding enhance the scope of learning. It provides a rich collaborative environment enabling the learner to consider diverse and multiple perspectives to address issues and solve problems. It also provides opportunities for the student to reflect on his or her learning. TMS provides powerful tools to help learners access vast knowledge resources, collaborate with others, consult with experts, share knowledge, and solve complex problems using cognitive tools. The constructivist learning environment also emphasizes authentic assessment of learning rather than the traditional paper/pencil test [4, 12] (**Table 1**).

TMPs broaden the information base and widen the range of learning experiences enabling learners to be active agents in their own knowledge construction by integrating new information

Skills	Phases of instruction
Data gathering	Awareness building
Data retrieval	Introduction and preliminary instructional tasks
Communicating for data collection	
Information processing	Acquire understanding
Information organizing	
Information compilation	
Communicating for data sharing and discussions	
Analytic, interpretative, problem solving framing conclusions, and formulating judgments Decision making and professionally engaging	Analyze, solve problems, and capability to address the problem

Table 1. TECHSKILLS developed while deploying TMPs.

into their schema or mental structures. The learning process is seen as a process of "meaning-making" in socially, culturally, historically, and politically situated contexts. TMPs also comply with creating a constructivist environment and involve developing learning communities comprised of students, teachers, and experts who are engaged in authentic tasks in authentic contexts closely related to work done in the real world. A constructivist learning environment also provides opportunities for learners to experience multiple perspectives. Through discussion or debate, learners are able to see issues and problems from different points of view, to negotiate meaning, and develop shared understandings with others. TMPs, thus if used effectively, can contribute to skill acquisition and skill enhancement and paving the way for twenty-first century digital skills [13].

2.1. Skill acquisition through TMPs

Technology can and does help students develop all kinds of skill from the basic to the higher order critical thinking ones. With this point in view, educationists have insisted on technology-enabled learning environment. Skill acquisition by teachers while deploying activity-based instructional strategies in turn enables transfer of skills to learners while using these activities. It has been found that such TMPs are effective vehicles for promulgating a host of skills [14]. Use of TMPs offers opportunities for learners to acquire skills of data collection, information processing, organizing information problem solving, collaboration, networking to negotiate through the cyber world, and to participate in online and community networking [13, 14]. The degree to which ICT has been integrated in an educational system can be evaluated by applying "Morel's Matrix"—a model that proposes an educational system that moves between four distinct phases: (a) emerging, (b) applying, (c) integrating, and (d) transforming [15].

Skill acquisition is a specific form of learning. Quality of education is determined from the acquisition of skills by learners. Skills have been reported as the global currency of the twenty-first century [5]. The need for acquisition of the right skills has long been considered as instrumental to meeting the goals of education. TMPs have explored various mechanisms by

which learning skills may be augmented and developed. TMPs have inbuilt capability to enhance the technology skills of learners by equipping learners with skills of data gathering, data retrieval, information processing information organizing, information compiling, analytical, and decision making [4, 13, 14]. However, these inbuilt capabilities can be exploited only if appropriate learning tasks are assigned to students. TMPs, which assign projects and require problem solving, are excellent methods by which skills of independent learning, self regulation, analytics, and decision making are utilized and enhanced.

Skill acquisition also transcends through various stages in tune with the level of integration of technology innovations in the classroom (**Table 2**).

The matrix represents graphically the evolutionary pathways for any educational experiment in the classroom. The details as compiled in the matrix assigns TMPs to development of critical thinking, stimulating one's preferred learning style, and opportunities for collaboration and experimentations.

The twenty-first century learning skills envisage four Cs viz., creativity, critical thinking, communication, and collaboration as most important skills for the future work environments.

The instructional strategies and teaching approaches that are suited for sustainable education reveal the deployment of information gathering skills, information processing skills, and analytical skills. The web 2.0 technologies hve opened up scope of communication and collaboration paving the way for community engaged learning, which is most relevant for disciplines that have a global connotation. A critical and thorough understanding of issues related to sustainability necessarily involves contributions from a wide variety of disciplines throughout the natural sciences, social sciences, and humanities. It requires thinking outside one's intellectual expertise and mobilizing multiresources for learning. In short, resourcefulness of the teachers is required to incorporate and adapt sustainability concepts to the curriculum [15].

The effective use of the skill depends on executive control of the teacher, which implies understanding of the purpose and rationale of the skill and adapting it appropriately during instruction. Appropriate adaptability involves modifying or creating instructional materials,

Transforming	Integrating	Applying	Emerging	Criteria/phase
Entire learning community involved	Driven by subject specialists	Driven by ICTs specialists	Limited, pragmatic, dominated by interested individuals	Vision[*]
Critical thinking, preferred learning styles, collaborative, and experimental	Learner centered; collaborative	Teacher centered	Teacher centered	Learning Pedagogy[*]
Technology-mediated pedagogical skills	Technology-mediated learning skills	Technology-mediated teaching skills	TECHSKILLS	Skill acquisition

[*]Adapted from Centre for Research on Lifelong Learning, 2009.

Table 2. Examples of stages in Morel's Matrix.

organizing learning experiences and learning activities, and blending it with other instructional approaches [4].

TMPs created learning pathways that contribute to higher learning skills like structuring models and judgment formulation [14]. The various technology mediated instructional strategies (TMIS) that teachers can use may be categorized into three based on the objectives that govern intended learning outcomes, for awareness building, collection of information, and collaborative e-learning activities [4]. The technology-mediated problem-based learning activities enable developing higher order thinking skills by providing students with authentic and complex problems. This approach to learning provides a more authentic context for learning and engages students in authentic tasks. It is used frequently in fields such as engineering, medicine, and architecture, through the process of working together, articulating theories, creating hypotheses, and critically discussing the ideas of others [16].

The development of such skills is most required for transaction of interdisciplinary and multidisciplinary curriculum, which are related to contemporary global subject and issues [15]. The listed strategy thus becomes very relevant for realizing goals of sustainability education. Sustainability, being an integrative multidisciplinary discipline has statistical, scientific, and humanistic dimensions. With its focus on specific problems and particular solutions, sustainability education emphasizes the significance of utilizing place-based and project-based approaches for attainment and application of concepts [16].

2.2. Significance of skill acquisition for sustainability education

The learning possibilities of technology may be deployed for a multidisciplinary and interdisciplinary subject like sustainability education. Studies have reported change in the technology skills required by learners due to changing learner's expectations and needs [17]. New technologies are interactive, making it now easier to create environments in which students can learn by doing, receive feedback, continually renew their understanding, and build new knowledge. Students in technology-integrated environments have reported that students immerse in the learning activity, which in turn individualizes the educational process to accommodate the needs, interest, current knowledge, and learning styles of students [7, 11, 12]. The curriculum is no longer focused exclusively on the traditional core subjects of language, mathematics, and history. Informed by the new vision of what the community felt, tomorrow's students would need to know and be able to do, these disciplines underwent major revision. Mathematics, for example, now includes the skill of comprehending extremely large and extremely small numbers, which are essential to environmental literacy and understanding relative risk factors, both in personal life and at work. Health now includes environmental issues such as cancer, allergies, and food additives as well as "consumerism" [18].

The term "sustainability" has an important history in development literature. In 1983, the United Nations convened the World Commission on Environment and Development (WCED), known informally by the name of its chair, Gro Harlem Brundtland. The Brundtland Commission's report, Our Common Future (1987), contains one of the most often cited definitions of sustainability:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainability education (SE) describes the practice of teaching for sustainability (**Figure 1**). Agenda 21 was the first international document that identified education as an essential tool for achieving sustainability development and highlighted areas of action for education [15]. Sustainable education attempts to change attitudes and lifestyles through imbibing and adopting the right approach to sustainability. It has been widely emphasized that sustainable development cannot be achieved by technological solutions, political regulation, or financial instruments alone. The need to change the way one thinks and acts becomes an important course of action for sustainability education. This requires quality education and learning for sustainable development at all levels and in all social contexts. Education has been included as a significant aspect of attaining sustainable livelihoods by focusing on accessibility, availability, affordability, accountability, and last but not the least, acquisition of knowledge and skills [18].

Ever since being a free nation, the concept of universal education was enshrined in the Indian constitution. Free and compulsory education were important terms, which found their places ranging from constitutional guarantees, election mandates, vision documents, and earmarking of planned funds.
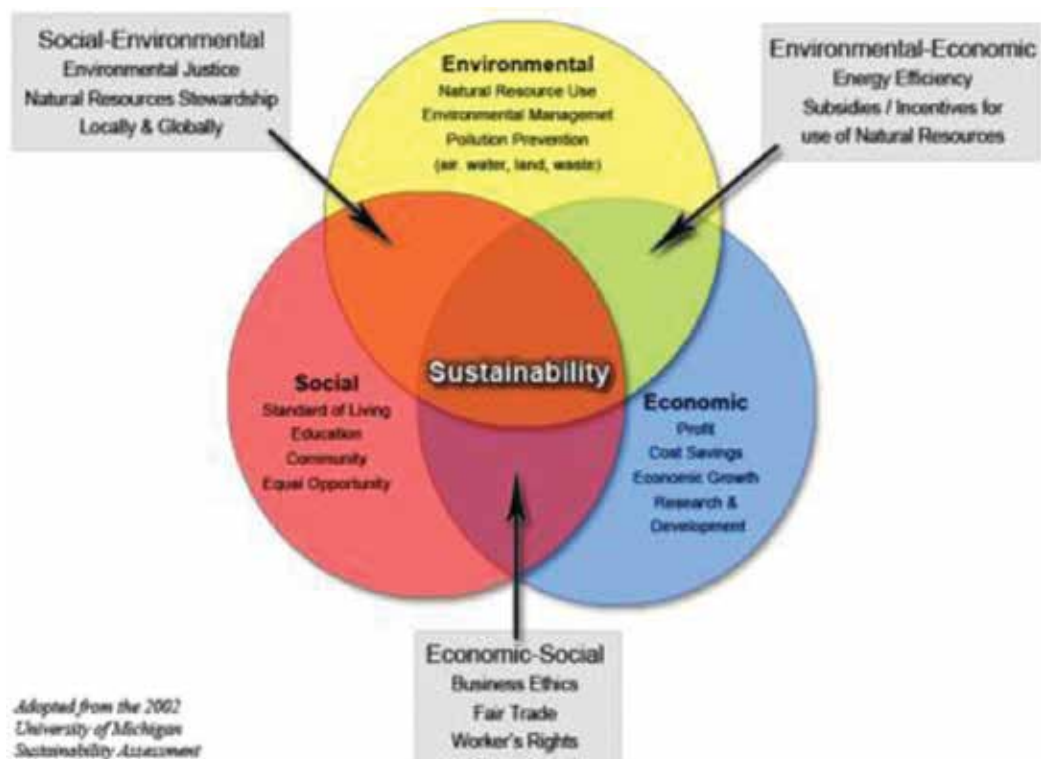

Figure 1. The three spheres of sustainability [19].

Concepts related to sustainability are growing in significance, in the context of the world, harboring a population of 7 billion, with resources becoming limited. This makes it imminent the need for individuals and societies to take responsibility for their actions. Actions, here and today, can have implications for the lives and livelihoods of people in other parts of the world, as well as for future generations [20].

This emphasizes the need to empower learners through responsible educational practices by which competencies like critical thinking, imagining future scenarios, and making decisions in a collaborative way are cultivated and enhanced.

SUSSKILLS	TECH SKILLS	TECHSUS SKILLS
SUSSKILLS TECH SKILLS TECHSUS SKILLS **Acquire skills of sustainability** Experimenting and experiencing sustainability—age 11–14 years Ecology footprinting—calculating natural resource use, measure levels of resource consumption relative to resource availability, the consumption of individuals, campus communities, cities, or entire nations. Carbon calculators—measures of carbon resource consumption necessary to curb such problems as climate change **Equipping others to practice sustainability** Practice, preach, and perform-conserving resources, ecological Ecological literacy. Provide occasions to discuss natural resource and waste management, particularly resource depletion, renewal, and toxification. Enhancing social skills by community engagement for learning such things as population demographics, consumption trends, and economic development models, and policy priorities, lifestyle choices. Community living and digital citizenship provide a unique feedback. Communication and collaboration activities for initiating dialogs and forums for discussions, deliberations and formulating judgments, Ecological footprinting, encouraging investigation and discussing processes to minimize and eliminate problems related to achieving targets	Digital resource identification, retrieval, and utilization Digital resource organization, data mining, and data analytics Peer tutoring, online tutoring, social media networking and developing online community problems	Use of digital resources, Wikis, blogs, online platforms, social media, MOOCS for collecting information for attaining concepts with regard to sustainability through activities like: use of online databases and use of statistical applications like R, SPSS, and MATLAB for analysis leading to knowledge generation and problem with regard to sustainability through activities like: trace the environmental history. Sustainability models offer opportunity to attempt chronological analysis, time series analysis, and projections of the future Footprint calculations compared over individuals, groups, or entire nations can provide a basis for wide-ranging discussions of inequality in resource use and waste, as well as the cultural, political, and economic systems that structure them. Policy analysis. More precise ecological accounting inevitably leads to discussions of different regimes of resource management and thus offers opportunities to debate environmental policy at the local, national, or global level. Furthermore, because ecological footprints can suggest multiple and highly different models of achieving sustainability, they may foster discussion about a wide range of environmental policies. Project future directions.

Table 3. Technology-mediated pedagogies for enhancing skills of sustainability (TECHSUS).

2.3. Skill acquisition—technology-mediated sustainability (TECHSUS models)

The sustainability integrated curricular model (SICM) [14] attempts to integrate sustainability concepts within curriculum and inculcate the values of sustainable living and livelihood among future and prospective citizens of the world. Sustainability concepts are inculcated at four levels. The skill set embodied in the twenty-first century skills implies preparing learners toward living sustainably. Sustainable development as is commonly defined as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (**Table 3**).

Technology intervention for attaining concepts of sustainability and acquiring skills of sustainable living may be introduced from the age of 11 years, when students are in the high school. For effective skill acquisition, it is necessary that the foundation of sustainability education has been laid. In the early years of schooling, sustainability concepts may be attained through direct experiences and activity-based learning strategies like nature study, field study, and gardening. These are incorporated in the broad discipline of environmental studies. The skills for sustainability that need to be emphasized for attainment of concepts pertaining to sustainability may be referred to as SUSSKILLS, which comprise of identifying the concepts involved, differentiating between healthy and nonhealthy sustainability practices, developing, inculcating sustainability skills, and fostering values related to sustainability viz., care and caution, prudence, and simplicity [21].

These need to be differentiated from the TECHSUS SKILLS, which encompasses TMPs for development of sustainability skills viz., identify resources on sustainability, use of digital resources, organizing information on sustainability literature, analyze the information using digital techniques like data mining, development of software applications, and digital web tools for sustainability practice. As envisaged by the sustainability integrated curricular model (SICM), sustainability skills at the higher secondary level (age 11–14) comprise of equipping skills of responsible livelihood, identifying the real-time problems concerning sustainability, associating concepts of "sustainability" to global events—past and present, building capabilities in identifying measures of problem solving, developing, and inculcating sustainability skills. Studies have found that skill building offers cent percent assurance of effective realization of objectives of sustainability education with regard to capacity building and ensures proficiency in concept delivery [15–18].

3. Conclusion

To conclude, ensuring inclusive and equitable quality technology and engineering education and promoting lifelong learning opportunities for all has been envisaged under goal 4 of the sustainable development goals. How well students learn in the learning place equips learners with skills of global citizenship. These get transferred to the work environment. The current global scenario requires engineers to be global citizens, as well as aspirational, ethical leaders" [20]. Hence, it is necessary that timely curricular intervention is required to address the needs of skilled manpower for sustainability education.

Sustainability education can be imparted through the use of digital resources, Wikis, blogs, online platforms, social media, MOOCS for collecting information, and for attaining concepts with regard to sustainability through activities like, use of online databases and use of statistical applications like R, SPSS, and MATLABS for analysis, leading to knowledge generation and problem solving with regard to sustainability through activities like tracing the environmental history. Sustainability models offer opportunity to attempt chronological analysis, time series analysis, and projections of the future.

Footprint calculations whereby individuals, groups, or entire nations are compared can provide a basis for wide-ranging discussions and highlight instances of inequality in resource use. More precise ecological accounting inevitably leads to discussions of different regimes of resource management and thus offers opportunities to debate environmental policy at the local, national, or global level. Furthermore, because ecological footprints can suggest multiple and highly different models of achieving sustainability, they may foster discussion about a wide range of environmental policies and project future directions.

Governments have a role in building capabilities through formulating the right policies based on research and global trends. Implementing these in various educational settings will help to drive innovation and infusion toward developing a sustainability-empowered community for the future. It can, therefore, be concluded that digital technologies may be effectively utilized for deploying TMPs, which would contribute toward skill acquisition for sustainable living.

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Inclusive Schoolwide Pedagogical Principles: Cultural Indicators in Action

Lindy Abawi, Susan Carter, Dorothy Andrews and Joan Conway

Additional information is available at the end of the chapter

Abstract

"Inclusion!" is the catch cry heard across both educational and community contexts and yet the reality is often less than ideal. The diversity and complexity of student needs within regular classrooms are both an asset and a challenge for schools and classroom teachers. We believe, with Nelson Mandela, that "Education is the most powerful weapon which you can use to change the world" and in order for such a dream to be achieved, it is essential that the pedagogical practices that support the needs of diverse learners are clearly understood and supported by both teachers and school leaders. Most existing research emphasises the need to improve the skill sets of both teacher graduates and practising teachers as a means of enhancing student support. We suggest that it cannot stop at the individual classroom practice level. To maximise student outcomes, inclusive pedagogical practices must be school wide, and well understood, thus resulting in a culture of inclusion becoming embedded in school wide practices and maintained over the long term. Inclusive schoolwide pedagogical (SWP) frameworks and shared practices lie at the heart of the two case study examples used to illustrate the key messages from our research.

Keywords: schoolwide pedagogy, inclusion, student special needs, social justice, school culture, school improvement

1. Introduction

Australia's Disability Discrimination Act of 1992 [1] and the Disability Standards for Education [2] support the inclusion of all students into, what is often termed as, 'mainstream' classrooms. There is a philosophical acceptance that all students have the right of access to equitable learning experiences. It is this 'students with special needs' understanding of inclusion

that is often thought of when the term 'inclusive school practices' is used. However, inclusion is far more than this. There is an increasing emphasis, in schools, on understanding and catering for the diversity of all learners in our classrooms, and rightly so. Australian demographics have been changing dramatically with increasing evidence of a richly diverse nation. According to statistics from the 2011 National Census, 26% (5.3 million) of Australians were born overseas and a further 4.1 million Australians have one parent who was born overseas. In 2011, 82% of the overseas-born population lived in capital cities [3].

As teachers, we are privileged to have the opportunity to work in diverse contexts and with diverse groups and individuals. The richness and opportunities within today's classrooms, to learn from and with our students, parents, community and colleagues by sharing perspectives and histories that may be unfamiliar to us, and to others, is an opportunity that must be embraced in order to break down the many social injustices that still exist. Such injustices limit the opportunities of students to fulfil their full potential. As educators, we have a moral and legal obligation to ensure that teaching and learning practices demonstrate respect and understanding of diversity [4]. So what types of school practices promote social justice? What sort of school culture encourages the embracing and valuing of diversity? How do school leaders and teachers advocate for each child in their care? Teaching should and can be an activist profession [5] because education is acknowledged as being fundamental to shaping our future. It involves "the formation of each new generation into the citizens of tomorrow…In this age of 'super-diversity', it is difficult to categorise or place people into neat boxes. It is therefore all the more important for us to sharpen up our thinking and practice by developing a critical understanding of issues of difference" [6].

The data underpinning the illustrations within our chapter were collected from two state primary (elementary) schools in a large regional city in Queensland, Australia. Queensland's 2005 Inclusive Education Statement [7] is a particularly insightful one and raises issues and approaches to education that require an immediate and ongoing response from school communities more broadly. The statement focused on:

- fostering a "learning community that questions disadvantage and challenges social injustice";

- maximising "the educational and social outcomes of all students through the identification and reduction of barriers to learning, especially for those who are vulnerable to marginalisation and exclusion"; and

- ensuring "all students understand and value diversity so that they have the knowledge and skills for positive participation in a just, equitable and democratic global society".

The current statement [8] outlines inclusive school practices as: responding constructively to the needs of all students; viewing difference as a resource; ensuring all school members feel safe and free from discrimination; and, promoting locally negotiated responses to student, family and community needs.

Over the years, there has been much discussion about just what 'inclusion' looks like in the classroom but less on what this looks like across a whole school community. So what does responding constructively look like – at a school level? How do the identification and

reduction of barriers take place – at a school level? How can all students and staff be brought to an understanding and a valuing of diversity? Answers to questions such as these can lever pedagogical change and ways of working across a school enhancing school culture and outcomes for all students.

2. The literature

The UN Convention on the Rights of Persons with Disabilities [9] states that education providers must ensure "persons with disabilities receive the support required, within the general education system, to facilitate their effective education". This statement is true not only in relation to students with different types of impairment, the more commonly interpreted understanding of the words 'special needs', but resonates with culturally diverse needs, unique learning needs, socio-economic diversity and indeed the full spectrum of individual student needs within classroom settings. Australia's Melbourne Declaration on the Educational Goals of Young Australians [10] requires that education systems "provide all students with access to high-quality schooling that is free from discrimination based on gender, language, sexual orientation, pregnancy, culture, ethnicity, religion, health or disability, socioeconomic background or geographic location".

Such statements are indeed inspiring but perhaps practice is more in the 'aspiring' phase. Educational policy translation into practice continues to be problematic and never more so than in the rhetoric that exists around concepts of inclusion. Florian suggests "Special education's policy framework, which is intended to ensure the right to education for those who would otherwise be excluded from schooling, has paradoxically created problems of inequality within education" [11]. She goes on to say that if the discourse within schools is deficit by nature – what the students are not capable of rather than what they are – then "it cannot help to resolve the dilemmas of difference" [11].

Research suggests that it is not possible to stimulate sustainable changes in practice without collaborative conversations based on activities, issues, solutions and epiphanies related directly to the act of teaching [12]. Key factors driving improvements in classroom practice can be seen as:

a. additional skill development on a needs level basis, and

b. exploring and unpacking current practices at a collective level, thus developing a "common language" for pedagogical action and reflection [13, 14].

As a result, colleagues and individuals can more easily reflect in-action and on-action [15], about what worked, and why, as well as what did not work, and why. This includes developing a shared understanding of what inclusion should 'look like', 'sound like' and 'feel like' within the specific school context.

In recent years, there has been much debate about just what it means to be an 'inclusive school'. UNESCO's [16] definition indicates inclusion should be seen as:

> a process of addressing and responding [emphasis added] to the diversity of needs of all children, youth and adults through increasing participation in learning, cultures and communities, and reducing and eliminating exclusion [emphasis added] within and from education. It involves changes and modifications in content, approaches, structures and strategies with a common vision [emphasis added] that covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system [emphasis added] to educate all children.

The phrases emphasised within the UNESCO definition are integral to what the authors believe are key to the establishment of sustainable inclusive school wide pedagogical practices which can be seen as "any and all efforts made by a school and its community to make students and their parents feel welcome" [17]. For such ideals to be achieved it is necessary to "consider how it might be possible for teachers to develop new ways of believing that all children can learn, that they have the knowledge and skill to make a difference to children's lives and that such work is their responsibility" [18].

For over a decade, research conducted by our research team, the Leadership Research International (LRI) Group based at the University of Southern Queensland, Australia, into school improvement in diverse Australian school settings, suggests that a goal such as this is not achievable by teachers operating alone within the four walls of their classroom [19–21]. The research-based framework for organisational alignment [22] (see **Figure 1**) illustrates the interrelationship between a school's vision, leadership practices, strategic foundations, community, shared pedagogical understandings and resource leveraging that must be considered in order to improve outcomes for students. It is the way in which these various components align, that influence the ways of working on a daily basis and are indicative of the school's culture. Fundamental to these interrelationships is the key element of holistic professional learning, which values teachers as leaders in partnership with formalised leadership personnel, working as informed collaborative individuals focussing their talents and abilities to target student need.

Schein suggests in Theory of Organisational Culture [23] three main areas (layers) which are indicative of an organisation's culture. The most visible layer is the *artefacts layer* which while clearly visible by others may not necessarily be well understood. The next deeper layer is the *espoused beliefs and values layer* where strategies, goals and shared perceptions are articulated and reinforced. The deepest layer is the *norms and assumptions layer* where deeply embedded, unconscious norms and assumptions lie. Therefore, school culture is visually manifested as artefacts such as a vision, a mission statement, a pedagogical framework, newsletters, and websites. Values and beliefs are explicitly articulated by leaders focused on drawing a school community together to work on shared goals. Over time, this becomes an agreed way of working – 'the way we do things around here' – the basic norms and assumptions of a shared and contextualised meaning system.

Although teachers are certainly a major contributor to improving student outcomes, if the word 'teachers' in the previous Rouse and Florian [18] quote is changed to that of 'school communities' to read 'consider how it might be possible for school communities to develop new ways of believing that all children can learn, that they have the knowledge and skill to make a difference to children's lives and that such work is their responsibility' then it more

STRATEGIC FOUNDATIONS

Those functions of a 21st century school that derive from its leadership and management offices and processes.

COMMUNITY COHESIVENESS

The extent of support for, and engagement with school processes within the school's internal and external communities.

HOLISTIC PROFESSIONAL LEARNING
Organisationwide strategies for the development of the school's staff in order to enhance the school's vision.

SCHOOL OUTCOMES

The sum of the school's impacts on its various communities, with impacts on the student community at its core. This includes student achievement; student well-being; teachers' professionalism; community perceptions and attitudes; school capacity for sustainable progress; and school resourcing.

HOLISTIC PROFESSIONAL LEARNING

HOLISTIC PROFESSIONAL LEARNING

GENERATIVE RESOURCE DESIGN

The design and use of a school's resources in accordance with the school's vision and pedagogical framework.

SCHOOLWIDE PEDAGOGICAL DEVELOPMENT & DEEPENING

The principles and strategies that derive from the school's vision and values and that direct the school's T & L practices.

HOLISTIC PROFESSIONAL LEARNING

LRI Team – March 2010
Adapted 2016

Figure 1. Research-based framework for organisational alignment.

accurately captures our view of the fundamental changes needing to be made. School communities must align their practices to support and work with students, staff, parents and communities to ensure that inclusive ways of working become embedded and sustainable across a school. We believe that inclusive schools are characterised by their processes, which support students, staff, families, and community on a daily basis, and which can be expanded upon to increase support at significant moments within a student's learning journey.

These factors work in synergy and support the establishment of inclusive schoolwide pedagogical practices and development of a school culture capable of supporting all students, families and staff, and in particular, those students with special learning needs, including social, emotional and intellectual. Although the underpinnings of school culture are nebulous

and difficult to pinpoint, an inclusive culture lies at the heart of quality school practices. It is the 'way we do things around here' that is indicative of deeply embedded practice and the principles that inform such practice. For the astute observer these surface in everyday discourse and in the general acceptance of school processes and structures. So the language of inclusion should be clearly heard across a school, in staff meetings, parent meetings, the playground and classrooms. Therefore, in our research, the collection of data from students, teachers, teacher aides and school leaders allowed for the identification of themes indicative of ways of working, which was the core of our quest to identify pedagogical principles that support the needs of diverse student cohorts.

We started our research by acknowledging that there were a number of already existing indicators (EIs) of inclusion from the current literature that needed to be considered. These included the understanding that inclusion is:

- a process;

- aligned to a vision;

- promoting locally negotiated responses; and

- involving changes and modifications; which

- increase participation and maximise outcomes;

thereby eliminating exclusion within and from education. Additional existing indicators detail inclusion lies at the heart of a learning community that:

- questions and challenges current practice; and

- ensures that all students understand and value diversity; that

- adults value difference as a resource; and

- practices engender feelings of safety and belonging; this means

- supporting and working with students, staff, parents and communities.

In the context of our research we were conscious that the above 10 existing indicators should be apparent somewhere within the school artefacts of an inclusive vision, as well as in the clear articulation of values and beliefs about the need to celebrate diversity, difference and inclusion, and ultimately in the norms and assumptions underpinning a school's 'ways of working'. Such evidence would particularly be reflected in a school's everyday language-in-use [24] and epitomize the school's organisational culture [23].

3. The methodology

A phenomenological case study approach was adopted where the phenomenon was 'inclusive practices supporting students with special learning needs'. This approach answers the question:

> In two inclusive school settings, what key school wide pedagogical principles and actions underpin the support of all students especially those with special learning needs?

Data collection focused on the lived experiences of stakeholders working within an inclusive school context combined with observations by researchers and their interpretation of artefacts.

Phenomenological research seeks to "study how human phenomenon are experienced in consciousness, in cognitive and perceptual acts" [25]. Phenomenology, a qualitative research approach, seeks to "locate the observer in the world" [26]. Husserl, Heidegger, Sartre, Merleau-Ponty, and others, believed that understanding a phenomenon involves collating the views, stories and perspectives of those experiencing it, with the researcher seeking to construct meaning from the messages shared [27].

Case study enabled the exploration of the phenomenon within its natural setting [26]. Two sites were purposively selected as these sites had been identified by the education system as offering effective examples of inclusion. Therefore, a variety of data sources should provide evidence of various aspects of the phenomenon to be exposed, interpreted and understood. VanWynsberghe and Khan [28] suggest that the interpretivist paradigm assumes that there are numerous points of entry into any reality, therefore participant perspectives and lived experiences within each context must be viewed both separately and as a whole, allowing the researcher to fully explore a particular reality relevant to the case study phenomenon. The research questions were developed collaboratively to focus on collating the lived experiences of a wide range of school leaders, staff, parents and students. The overarching research question fore-fronted the necessity to take into account the context within which inclusion occurred in order to develop an understanding of the phenomenon. The case was in its simplest terms inclusion in two school settings and the overarching research question was explored through two sub-questions:

1. How are all students, especially those with special learning needs, supported within an inclusive school setting?

2. What specific actions, structures, and school wide pedagogical practices (the school's "ways of working") contribute to the inclusion of all students?

We define 'special learning needs' as: disabilities; enhanced abilities, diverse cultural backgrounds; first language diversity; learning difficulties or disorders; and/or emotional, behavioural, physical, and spiritual special needs.

Two authors spent several months, collecting data – one in one school and one in the other. Triangulation of data sources (verbatim transcripts from semi-structured interview questions, observations as noted in researcher journals, and artefacts collected on site) enabled the researchers to view and investigate the phenomena from multiple perspectives and provide an understanding of school culture at each level [23]. In this study researchers independently coded a set of data and then met together to reach consensus on the emerging codes and categories. Researcher interpretations of practices and understandings were checked with participants and an initial report sent to each school principal for comment to ensure credibility and cross check that the interviewee's intent had been appropriately captured.

4. The research design

Maxwell's [29] interactive model of research design was taken into account and consideration given to the reciprocal relationship between the research questions, goals, methods, validity and conceptual framework. **Figure 2**, illustrates the conceptual framework used in this study which draws together Schein's Theory of Organisational Culture [23] with the existing indicators (EIs) of inclusive school culture (**Table 1**).
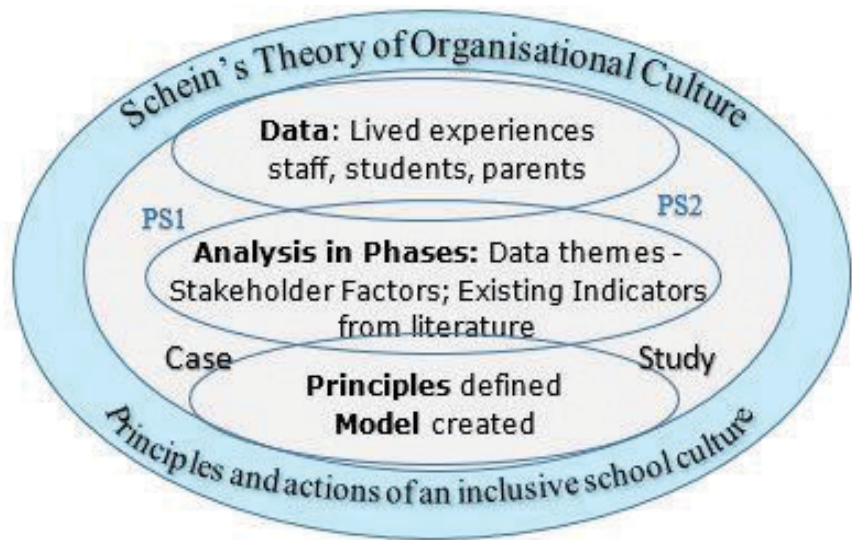
Figure 2. Conceptual framework of research design.

Inclusion …	
EI1	is a process
EI2	is aligned to a vision
EI3	requires promotion of locally negotiated responses
EI4	involves changes and modifications
EI5	involves increased participation to maximise outcomes
EI6	needs a learning community that questions and challenges current practice
EI7	needs all students to understand and value diversity
EI8	needs adults to value difference as a resource
E19	requires practices that engender feelings of safety and belonging, and
E20	requires *supporting and working with students, staff, parents and communities*

Table 1. Existing indicators (*EIs*) of inclusive school practice.

Three phases of analysis were undertaken:

- Phase 1 sought understandings related to stakeholder factors (SF);

- Phase 2 collated broader emergent themes and linked these to SFs and existing indicators (EIs); and,

- Phase 3 involved seeking deeper understanding by identifying new knowledge and revealing the principles sought as the answer to the research question.

The two Primary School case study sites are referred to as PS1 and PS2.

5. The context

The two Primary School case study sites are referred to as PS1 and PS2. Both schools had been identified by regional office staff as having quality outcomes and inclusive environments, and each had a strong sense of identity (**Figure 3**).

They had similar numbers of students but different demographics. PS1 had above average levels of students with special needs (12% of total enrolment). Primary School 2 (PS2) had an average sized special needs program (9%) but around 50% of students came from backgrounds where English was an additional language or dialect. Both schools had demonstrated strong gains identified by the National Assessment Program.

Both schools had undertaken a school capacity building process, in partnership with LRI team members, over a number of years. Each school community had collaboratively developed a strong school vision, well understood and explicitly taught values, and a schoolwide pedagogical

Figure 3. PS1's and PS2's vision and SWP.

(SWP) framework [30, 31]. Each of these artefacts emerged as a result of the school engaging with the Innovative Designs for Enhancing Achievements in Schools (IDEAS) Project [22]. Int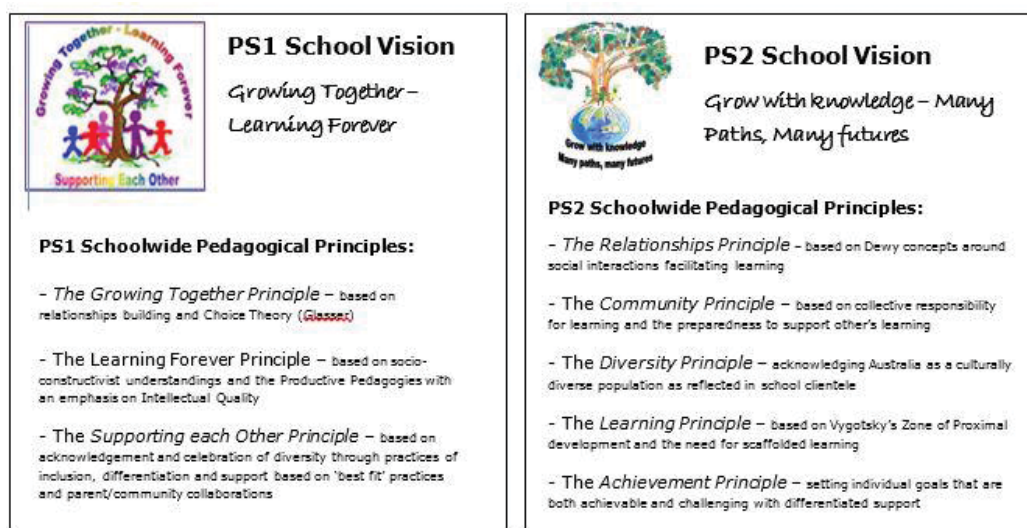erestingly both school communities adopted the image of a tree as a metaphor for their vision, even though each vision was distinctly different. Each vision and SWP is captured in **Figure 3**.

6. Research participation

Permission had been gained from Education Queensland, school principals, and university Ethics Approval had been received. Principals indicated that staff could volunteer to be involved and suggested a number of parents and students who would be interested in this research because of its relevancy for them. Students took part in focus group discussions at each school. Staff and parents engaged in individual conversations with the researchers. Conversations were digitally recorded and then transcribed by the researchers themselves.

Purposive sampling was utilised in alignment with what Cohen et al. [32] advised researchers to consider: sample size, representativeness, access to the sample; and the sampling, where too large a sample might become unwieldy and too small a sample might be unrepresentative. In total 25 teaching staff were involved in the data collation exercise – 15 (10% of fractional and full-time teaching staff) from PS1 and 10 (7.5% of fractional and full-time teaching staff) from PS2. Eight students were interviewed in a focus group from each school. In addition, several teacher aides and parents were interviewed. Collectively the data represents the viewpoints of approximately 45 participants.

The first interpretation of the data drew on the perceptions and stories of students, teachers, and teacher aides. For the purpose of capturing the initial picture of pedagogical and cultural 'reality', data collected from principal interviews were not included in this chapter although these findings will be reported in the near future [33]. The reasoning behind this decision was to ensure that we captured the voice of the people who experienced the reality of the 'the way we do things around here' and therefore seen by those operating at the classroom level. It is through the day to day operations that norms and assumptions underlying school culture are illuminated. Some participants referred to actions by the principal or other members of the leadership team. The collation of these perceptions infers a number of leadership characteristics integral to each school's 'ways of working'.

The semi-structured interview approach allowed participant discussions to illustrate additional related ideas as interesting points emerged. Excerpts of interview data illustrating findings have been woven throughout this chapter. Schools have been numbered (PS1 and PS2) and participants identified by a coding system: Teacher 1 – T1; Teacher Aide 1 – TA1; Parent 1 – P1; Student – S1; and, Head of the Special Education Program – HOSE.

7. The analysis

Data analysis was conducted in three phases.

- PHASE 1: Stakeholder focussed themes (SF)

- PHASE 2: Themes linked to stakeholder factors (SF) and existing indicators (EI)

- PHASE 3: Theme differences identified, principles articulated and a model created

PHASE 1: The Stakeholder focused phase acknowledged that a school is a community of individuals working together. Factors relating to the key stakeholders were summarised according to staff, parent, student, and leadership with management related factors. Although there were context specific nuances, a number of inclusive strategies appeared to be in operation across both schools. These operated as integrated pieces of a whole school approach embracing staff, parents, students, leaders and system interactions.

In both contexts, it had been reported that the principal had placed priority on developing staff capacity to support students with a particular need, and then followed up with additional sessions as required. Collaboration across the school ensured that planning was comprehensive and manageable by all parties inclusive of special support staff, teachers, teacher aides, students, parents and the leadership team. Professional development and time for professional conversations were a priority. Multiple opportunities were provided within the classroom for students to build metacognitive skills through mental processing tasks and 'talk alouds', so students could learn how to express their learning and emotional needs. This was particularly important for PS2 due to their high numbers of students with English as another language.

> *Staff focused factors: targeted professional development; professional collaboration; intentional development of metacognitive skills; clear consciousness of varied needs; shared understanding of successful pedagogies for context*

Teachers indicated that considerable time was spent by the principal and other members of the leadership team, such as the Head of the Special Education Program, on contacting parents prior to a student's entry into school. Parents confirmed this. PS2 found this challenging as many parents did not speak English but translators were brought into the process. Multiple and varied opportunities were provided for parents to express their concerns and be 'heard'. Sometimes all that was needed was for parents to be reassured that support measures were in place for their child. Where regular consultations with medical practitioners and support personnel were needed, these were arranged and the school assisted parents to understand and respond to any concerns raised.

> *Parent focused factors: prior contact with parents; multiple opportunities for parents to engage; supported interactions with medical or other support services; empathy and understanding of diverse family contexts*

Students were encouraged to be leaders of inclusive practice within their classrooms and whilst in the playground. Social skills and values education programs were in place to assist students develop peer relationships and support groups. Student leaders were actively encouraged to be the voice for their peers and were fully engaged in orienting students new to the school and becoming mentors in their initial transition to campus. Teachers were encouraged to provide multiple opportunities within each classroom for students to share their experiences, passions and hobbies in order to find 'triggers' and 'hooks' into learning. At both schools, students were encouraged to build independent learning skills within the classroom. Older students set their own learning goals and planned how to attain these through small achievable steps.

Student focused factors: student leadership development; social skills/values explicitly taught; peer support; personal learning goals; interests taken into account

Where information was received from parents, or another avenue, that a student with particularly complex issues would be enrolling at the school, then at a managerial level, teams of people would meet to detail required school adjustments to process, environment and resources. This was undertaken well in advance to fully inform planning at the classroom level but was flexible enough to make adjustments 'on the run' when direct individual evaluations could be made. This pre-planning would often involve liaising with District Support staff to flag the probability of requiring extra resources or equipment. The leadership team interviewed parents, with their children, and the school's vision and expectations were clearly articulated. Leadership was not considered the domain of the principal alone, or of the leadership team as a whole. Individual staff members were encouraged and supported to make contributions to and lead working groups and planning sessions.

Leadership and management (L&M) factors: address complex issues prior to enrolment; accept that context makes a difference; work with outside support avenues

Reflection: With these various factors in mind, the research-based framework's (**Figure 1**) element of Cohesive Community becomes apparent. The principal made it very clear that respect for all stakeholders was expected. Leaders believed in supporting families throughout their entire contact with the school, prior to student enrolment and through to moving to a different location. Basically student need drives planning, timetabling, communication conduits, professional development, and relationships with parents and the wider community. In both schools, it was noted that staff had moved on when their expectations did not meet the expectations of the principal. The leadership team emphasised the need to maintain whole school commitment to the integrity of the school Vision, which was seen as a dynamic entity providing ongoing direction and actioned through school wide practices. This shared commitment could be seen and was reflected in each context specific language of inclusion.

PHASE 2: The themes linked to stakeholder factors (*SF*) and existing indicators (*EI*) phase sought to more fully understand the character of the inclusive school practices in place. Emergent themes were examined in detail for the recurring principles that underpinned the cultural assumptions and beliefs, which impacted on decisions made within each school. These choices influenced how each school engaged with their stakeholders. Both schools had surprisingly similar ways of working overlaid with contextual differences and there were definite synergies in initial themes, therefore school themes have been combined and nuances identified where synergies did not directly align. Extracts from the data that illustrate a theme are then taken from either one or perhaps both schools.

Not all points within themes are illustrated with examples but the data clearly supports the theme with snippets of conversation and synthesised interpretations. **Table 2** captures the themes and indicates the schools where a theme is particularly strong. Where one particular element within a linked theme came to the fore as being of major importance, apart from other related factors, the sub-theme to the theme above is indicated by a (b). It also correlates themes to the stakeholder factors (*SF*) and the 10 existing indicators (*EIs*) outlined previously.

Key theme	Evidence	SFs/EIs
Theme 1:Organisation & structures are strongly student centred & inclusive	School strategic foundations are linked to the vision, values and SWP (PS1 & PS2).Everybody works together to ensure every student has their needs met (PS1 & PS2).The principal ensures all teachers are inducted into who we are (T3 PS1).Teachers make a huge effort to include all kids. The difference between now and 3 years ago is huge. There were kids fighting to be included …now, they seem to just come and everyone's happy. We make things work! (T1 PS2).	L&M SFEIs 1, 2, 3, & 5
Theme 1(b):Best fit choices: students, teachers, teacher aides, resources & environment	Timetables are developed as 'best fit' choices – student to class, teacher to class, aide to teacher, aide to student – staff strengths and environmental aspects are considered (PS1 & PS2).All kids that come into the school, we want to do our best for them. We try and tailor programs (whether they've got a disability or not) to suit that child … down to changing Human Resources and fiddling current structures and processes around (HOSE PS1).	Staff & L&M SFEIs 3, 4, & 6
Theme 2:Explicit teaching of social skills & the valuing of diversity	Tolerance, acceptance, empathy, active listening and clear high expectations are explicitly taught as are school values (PS1 & PS2).I usually get parents in, because parents then feel like they're part of the classroom as well…We talk about everyone's religion because religion is such a big thing in the cultures at the school… Then I find after that the kids value our values more (T2 PS2).Difference is celebrated (PS1 & PS2).The kids come and they're taught everyone has the right to speak, everyone has the right to say what they need to say, no-one is different (T3 PS2).The greatest strength of this school is the fact that we have so many children from diverse nationalities, cultures and these children do fit in (TA1 PS2).	StudentSFEIs 7, 8 & 9
Theme 3:Clear communication, shared language & shared expectations	Clear communication strategies (PS1 & PS2).We communicate really clearly here. The expectations in my class are the same as everywhere else with just a little flexibility – some days more than others but they still have to adhere to the school values – it comes under that umbrella, our vision (T2 PS1).Well defined understandings of specific students by teachers and peers (PS1 & PS2).We understand that some behaviours can be driven by things beyond their control (T2 PS1).Once their stories are told, then the respect comes in, then if anyone goes outside of that we can say "remember we have to respect them because they don't like that" (T1 PS2).Well defined behaviour management procedures (PS1 & PS2).We are all on the same page as far as behaviour expectations go (T2 PS1).A lot of the kids who come understand rules …they like to know what they have to do. Because we've got [behaviour walls and sets of rules]…it's seen and it's shown and everyone says the same thing, the kids understand that it's the same thing throughout the school (T1 PS2).	StaffSFEIs 1, 2, 6 & 8
Theme 4:Positive relationship building between staff, students, parents & community	Strong relationships abound within and beyond the school gates and parents are involved in supportive, student-centred learning partnerships.Lots of meetings…You've just got to persist…Let's try to get specialist appointments, let's do this testing, the evidence is saying this (T2 PS1).Initiating positive communications with parents from early in the year onwards.P…[The principal] insists that we keep in contact from the beginning – just say hi how's it going? – then when harder conversations may be required we already have a relationship with the parent (T4 PS1).Supportive parent group seeks to strengthen relationships with teachers and back up school initiatives.They're valuing diversity, they're valuing difference and they're enjoying and valuing the Visions program that we do on a Monday and they feel like it is very important for their children so that gives us the basis to keep going with this (T1 PS1).	Parent & Staff SFEIs 3, 7, & 10

Key theme	Evidence	SFs/EIs
Theme 5:Strong sense of safety, family & 'wrap around' student support	Creating spaces and places where staff, students and parents feel safe and accepted is important in an inclusive culture.I think that it is the safety that the children feel – and the fact that parents are really partners in their child's education (HOSE PS1).I've seen a lot of young kids come with a lot of anger and a lot of hate towards different people…different races and colours. It takes probably around 6 weeks for that to go away and realise they're in a safe place, there is no danger (T1 PS2).	*Parent Staff & Student SFEIs 9 & 10*
Theme 6:Transitions into & out of school prioritised	Schools work closely with parents and other schools to enable students to accept change (PS1 & PS2).We take the kids to Master classes at the high school and other activities we are invited to – like musicals (T2 PS1).Teachers actively teach and promote independent student responsibility for actions, possessions and organisation in preparation for secondary school.We teach independence – metacognitive stuff – it's important as they get older (T3 PS2).From the time it is known that a child is coming to the school, or moving on to another, school leaders contact past schools, future schools and parents to put in transition plans where needed, to ensure success (PS1 & PS2).Sometimes [HOSE] works to admit students gradually to the school environment so overload doesn't occur for them or their parents (T3 PS1).	*Students & Parent SFEIs 1 & 10*
Theme 7:Teachers use information & data to plan adjustments and engage learners	Collated data is regularly used to level activities and to plan for support and differentiation to ensure all learners are able to engage.We pull the data out and put it all on this big spreadsheet. We colour code, work out where our kids are, and then plan our differentiation (T5 PS1).I've found that from the data one child shouldn't be following the general programme for the year level, I will need to do a separate plan written for them (T3 PS2).Understandings of the fact that some students require different strategies to enable them to focus and learn.They let kids have what they need. Some may need MP3 players in their ears to listen to while they are doing their work, and some may need fiddle toys. Some may need a break time, so they take a break card and they go and have five minutes and then they come back (P1 PS1).	*Staff & Students SFEIs 4, 5, 6 & 8*
Theme 8:Differentiation & inclusive pedagogies articulated, negotiated & actioned	Some teachers are more confident in relation to differentiation and inclusion than others. A mix of differentiation pedagogies (e.g. content modification) and inclusive pedagogies (e.g. using different forms of communication) are utilised and shared.…not gifted just better at it. Then our support teacher goes away and he writes enrichment programs for those children to help the teachers (T6 PS1).We look at every child individually. We have differentiation in place for many children – other kids are great helping new ones come on board too (T2 PS2).Mary (pseudonym) is my little selected mute. I think of ways to non-verbally communicate with her and the rest of the kids in my classroom (T4 PS2).	*Staff & Students SF EIs 5, 7 & 8*
Theme 9:Professional learning & sharing between staff	Much time and money is spent on building staff capacity to meet student needs.[Our support teacher] has been doing lots of PD with casual aides and that has made a big difference to results…teacher aides have really taken ownership of it. We call them para-professionals and they are fantastic (T5 PS1).We look at what needs the students have and where the challenges are for staff, then tailor PD or intervention to support them… (HOSE PS1).	*Staff SFEIs 4 & 6*
Theme 10:Strong ethical and moral principal leadership	Strong moral leadership from the principal (PS1 & PS2).I came from a school where there was not the support that you get here. The kids are tough sometimes – because of multiple needs – but the leadership team will do what they can for teachers and they really care about the kids (T4 PS2).There is a clear vision and direction for the school (PS1 & PS2).Expectations are communicated clearly, consistently and regularly (PS1 & PS2).Decision making is solutions focussed, and as a result this approach permeates down to all staff within the school (PS1 & PS2).Principals articulate expectations that all staff will contribute to, establish and model high expectations for students (PS1 & PS2).	*L&M SF*

Key theme	Evidence	SFs/EIs
Theme 11:Targeted informed leadership evident at all levels of the school	Strong principal social justice leadership, teacher leadership and student leadership teams work in parallel within PS1 (a slightly different manifestation occurs in PS2).Shared strong social justice leadership between the principal and HOSE is evident. Teachers and students are expected to step up to expectations.The school community as a whole support school direction and intent (PS1 & PS2). The leadership team builds capacity in others – teachers, teacher aides and student leaders. Professional learning is undertaken, shared and woven into justifications for practice.P…[The principal] will often share something he has read or a workshop he has been to and offer others the opportunity to learn more (T5 PS2).Student leadership is promoted. Older students have a clear understanding of the role they play in setting an example for younger students (TA3 PS1).	L&M SF

Table 2. Themes correlated to stakeholder factors and existing indicators of inclusion.

Researchers' reflection: At first it seemed surprising that there were such strong common themes emerging, considering the differences within each school and its unique vision, values, SWP and community context. What was apparent from the beginning of the analysis though was a genuine sense that each school community was predominantly and individually 'on the same page', wording actually used by a number of participants. This 'same page' was entitled 'inclusive school practices'.

The language of social justice and inclusion ran throughout the transcripts from both schools' community members evidenced in words such as 'a huge effort to include all kids', 'we make things work', 'talk about everyone's religion', 'everyone has the right to speak', 'adhere to the school values', 'comes under that umbrella, our vision', 'remember we have to respect', 'valuing diversity', 'valuing difference', 'the safety that the children feel', 'partners in their child's education', 'tailor programs', 'admit students gradually to the school environment so overload doesn't occur', and 'plan our differentiation'. Similar messages continued to emerge from the transcripts.

PHASE 3 saw theme differences identified (**Table 3**), principles articulated and a model created (**Figure 4**) to represent the essence of the findings. Although there was considerable correlation and affirmation of the existing indicators of inclusive school practice (see **Table 3**), additional themes emerged. Remembering that school leader data were not used, it is significant that the two emergent themes both pertain to leadership: strong ethical and moral principal leadership and targeted informed leadership evident at all levels of the school.

These emergent themes show how the principal, in particular, is perceived in each school. A corresponding analysis of the rhetoric embedded within the leaders' data will ultimately show correlations and additional insights to be woven into these findings.

Through the process of cross-checking with existing indicators (*EIs*) and discussing overlapping theme elements it was agreed that certain characteristics were indicative of the "key school wide pedagogical principles and actions [that] underpin the support of all students". Inclusive school wide pedagogical principles emerged, cultural indicators in action, reflecting alignment, both structural and cognitive. Such alignment resonates with the elements

Themes (links to other themes have been placed in brackets)	PS1	PS2	EIs
Organisation & structures strongly student centred & inclusive (11, 12)	✓	✓	1, 2, 3
Explicit teaching of social skills & the valuing of diversity (3, 4, 5, 11)	✓	✓	5, 7, 8
Clear communication, shared language & shared expectations (1, 4, 5, 12)	✓	✓	2, 6
Positive relationships: staff, students, parents & community (3, 5, 6)	✓	✓	3, 10
Sense of safety, family and 'wrap around' student support (3, 4, 6)	✓	✓	9, 10
Best fit: students, teachers, aides, resources & environment (1, 4, 8)	✓	✓	4, 6
Transitions in & out prioritised (1, 4, 5, 12)	✓	✓	1, 10
Information & data to make adjustments and engage learners (3, 6, 9)	✓	✓	6, 4, 5, 8
Differentiation & inclusive pedagogies articulated, negotiated, actioned (3, 6, 8)	✓	✓	5, 7, 8
Professional learning & sharing between staff (8, 9)	✓	✓	4, 6
Strong ethical and moral principal leadership (1, 3, 4, 5, 6, 7, 12)	✓	✓	_____
Targeted informed leadership evident at all levels of the school (1, 8, 9, 11)	✓	✓	_____

Table 3. Themes across schools and matched to key factors.

Figure 4. A conceptual model of the cultural indicators of an inclusive school.

in the organisational model developed by the LRI, the research-based framework for organisational alignment [22]. With these findings in mind a number of inclusive principles and the embedded actions reinforcing these were articulated, as were the key characteristics taken from the analysis. Together they led to the identification of each of the following:

- Principle 1: *Informed shared social justice leadership at multiple levels*

  The principal ensures that teacher leaders, teacher aides and student leaders are empowered to plan and act in the best interest of others with a focus on inclusion and support. Leaders (staff and students) challenge the status quo. It began with each principal's firm commitment to social justice leadership. Each principal then placed a major focus on capacity building school wide whilst ensuring that the voices of students, staff and parents could be heard and concerns actioned. Targeted professional learning opportunities were of utmost importance and both principals, over a number of years, dedicated valuable time and resource commitment to engaging in an externally supported process of school renewal. Sergiovanni noted that "Few leaders have the competence, time, and information needed at any given time to get the job done. Wise leaders try and rely on others and build their own knowledge capacity" [33]. Principals epitomise this willingness to learn from and with others which is the essence of the holistic professional learning element so fundamental to the research-based framework [22] and driven by what emerged as Themes 10 and 11.

- Principle 2: *Moral commitment to a vision of inclusion*

  The language of inclusion and support is heard from the top down. The message is reinforced by teachers, support staff and the leadership team as a whole. It is a message that never waivers and is never compromised and the Principal ensures that action ensues if this vision is not met. Themes 1, 2, 4, 5, 7, 8 and 10 in particular reflect the nature of this principle in action. Each school's vision, an integral ingredient of their strategic foundations is clearly articulated and the essence of inclusion is obvious with words such as growing together and many paths, many futures. Each school's SWP even more clearly articulates the expectations of inclusion and the celebration of diversity.

- Principle 3: *Collective commitment to whatever it takes*

  Across the school a strong collective commitment to meeting the needs of all students through proactive planning, forward thinking and putting strategies in place to overcome barriers and remove possible obstacles were considered well in advance. Themes 1, 4, 7, 8 and 11 are particularly pertinent. Data investigation, conversations with parents and students, and with advisors and system personnel allowed for identification and collaborative planning to take place across the board. The strong values and social skilling programs were integral to ensuring peers were a part of the collective commitment and student leaders were utilised as mentors and advocates. Teacher aides were a strong link in the chains of support enabling students to succeed. Believing that all students have the right to an education

in their parents' school of choice, each principal was seen to be guiding and supporting teachers to make this work. Each inclusive environment was made richer by the shared understandings of effective ways of working, articulated within each schoolwide pedagogical framework, and the way in which these were enacted, providing consistency and alignment of action to vision.

- Principle 4: *Getting it right from the start*

  This principle emerged from the extensive organisation and management focus placed on wrapping students with support. Teachers indicated that the leadership team would negotiate 'slow transitions' or 'supported transitions' when needed. Teachers and teacher aides were consistently supported to improve their knowledge and skills. Documentation, communication and reflection ensured consistency. Themes 1, 2, 3, 6, 7, 8, 9, 10, and 11 underpin this principle. The strategic foundations of each school allowed for flexibility and clever resource allocation to support needs from the moment a student entered the school. The well-developed social skills and values program means that older students could induct new students and were constant role models for others moving through their learning journey. Induction was also essential for staff so that clear expectations of inclusion and differentiation were actioned. Each principal ensured that rhetoric was indeed a reality.

- Principle 5: *Professional targeted student-centred learning*

  A significant component of actioning each school's SWP was the need to make time and space for professional conversations centred on student need. Those tasked with the responsibility showed a willingness to adapt and be flexible with structures, timetables and human resources. All staff demonstrated commitment to providing and undertaking professional development targeted to meet the needs of the particular students needing support. Planning for student specific needs, where possible, starts well before a student enters the school and continues as they plan for moving on. Information is shared and parents are an integral part of the student-centred knowledge collation. This principle is integrally linked to Themes 3, 4, 5, 6, 7, 8 and 9. It again highlights the holistic professional learning element integral to the capacity building for improved student outcomes.

- Principle 6: *Open information and respectful communication*

  Themes 1, 3, 6, 7, and 8 indicate the priority placed on really getting to each student and their family. Teachers needed to 'know' students and their needs, aspirations and hooks into learning. There were frequent interactions between school leaders, teachers, students and families, as well as, support staff, medical practitioners, specialists and community elders. The transparency within decision-making processes and the allocation of resources were easily seen to be priorities according to data and availability. The research based framework elements of Community Cohesiveness and Generative Resource design were evidenced through the ongoing efforts to inform and include all stakeholders. Participants indicated that

principals made school expectations clear for all concerned and where necessary would reiterate the essence of the school's inclusive vision.

8. A model of cultural indicators in action

A conceptual model of the cultural indicators of an inclusive school was (**Figure 4**) created to capture the inter-related nature of the six principles and how the essence of these align with and help action and strengthen the cultural indicators of an inclusive school culture. These indicators either emerged from this research or were confirmed by this research (the EIs) and provide a point of reference for collegial reflection around current practices within any school context.

Participants from each school, identified regionally for being both inclusive and having consistently improving levels of student academic achievement (according to NAPLAN data), demonstrated a consistency of language use and context specific meaning holding particular significance. Such a pedagogically rich language, when consciously reinforced by the leadership team, becomes embedded in the strategic foundations of the school and serves a number of crucial functions:

- Reinforcement of the school vision

- Reinforcement of pedagogical practices that are effective for students in a particular school context

- Dissemination of the school's culture and expectations of inclusive behaviours aligned to clear values and beliefs

- Induction into the school culture

- Advocacy for the needs of diverse student and family cohorts

These functions are underpinned by a continually evolving process driven by school principals seen to be committed to social justice. Underpinning norms and assumptions related to the expected ways of working are evidenced within the 'language of inclusion' used by teachers, students, parents and teacher aides, and appear indicative of principal commitment to inclusive school practices. The model speaks to aligned practices across a school – the bond between leadership intent, school vision, schoolwide pedagogy, shared understandings and expectations, and a willingness to do whatever it takes to ensure student needs are catered for. Commitment to reflecting on existing practice, tackling inequity and building relationships across the school and broader community, build feelings of safety, respect, belonging and celebration.

9. Summary of findings

It is acknowledged that contextual factors make a difference and strategies that may work in one context may be less than effective in another. It is also acknowledged that those interviewed

only represent a small sub-section of possible participants. However, a number of significant links between school culture and ways of working emerge, underpinned by six principles of inclusive school practices answering the research question "what key school wide pedagogical principles and actions underpin the support of all students especially those with special learning needs?"

Leaders were perceived as consciously developing informed shared social justice leadership at multiple levels (Principle 1) including the development of teacher aide and student leadership skills. At the norms and assumptions layer within each school there was strong moral commitment to a vision of inclusion (Principle 1) made by the principal and articulated at every opportunity and visible to others. Those not happy with such a vision 'moved on'. Staff, students and community united in the desire to support all students, no matter how complex their need. Leaders focused money and time on building collaborative and individual capacity.

Each school community as a whole demonstrated collective commitment to whatever it takes (Principle 3) which meant essentially a commitment to getting it right from the start (Principle 4) by developing strong relationships with students, parents community and system staff to ensure the 'right fit' or resources, staff and students. Leaders pursued shared understandings of expectations and developed processes for collecting and disseminating information. As information was collated and discussed with staff, families and perhaps medical advisors, complex student needs requiring additional resourcing, from human resources to physical equipment needs, or additional professional learning (Principle 5) could be planned, thus effectively laying the groundwork for success. Articulation of successes, challenges, needs and ongoing direction enabled shared understanding and language of inclusion to be heard through open and respectful lines of communication (Principle 6) enabled strengths and challenges of both staff and students to be planned for in advance.

The data and findings indicated that pedagogical practices at classroom and school level looked different in the different contexts; however, whilst the minutia of practices differed, they still conformed to similar norms and assumptions related to the principles underpinning pedagogical choice and implementation within each inclusive school culture. The language of inclusion reinforces and sustains the combined focus and also helps to induct those new to the school ensuring that the vision of inclusion remains alive.

10. Conclusion

The findings from this research are promising, and when combined with the findings from the leadership data will provide further focus for deep reflection by researchers and educational leaders in schools and school systems. Inclusive school cultures are not easily attained, and even more difficult to sustain over the long term. Government agenda and policies, system leaders, school leaders, teachers, students and parents all come and go, raising questions about how to maintain an uncompromising social justice agenda anchored to the needs of a changing student cohort within a specific school context. This study has provided answers to some of these

questions in its acknowledgement of the central role played by a school's vision, a leadership structure that supports activism, school wide understandings of practice, informed decision making, and induction processes to acquaint newcomers with the school culture and accompanying expectations. Moving forward the six principles of inclusion and the accompanying conceptual model of the cultural indicators of an inclusive school, provide lenses for future research, as does the understanding of the importance of school culture and the significant role the school principal plays in advocating for, promoting and facilitating inclusive school structures and practices.

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Intercultural Education in Poland: Experiences, Problems and Prospects

Ewa Ogrodzka-Mazur

Additional information is available at the end of the chapter

Abstract

The study presents an assessment of the achievements and problems of intercultural pedagogy as an important educational (sub)discipline, which has been developing intensively in Poland—particularly since the 1990s. Against the background of a crisis of multicultural education, a new suggestion was presented aimed at overcoming its drawbacks in the form of the theoretical assumptions and practical solutions of intercultural education. However, understanding and accepting intercultural education depend on many factors, for example, historical experiences, the developmental level of societies and the sociopolitical system. This necessitates presenting the essence of intercultural education as well as formulating its message both in Poland and worldwide.

Keywords: pedagogy, intercultural pedagogy, multicultural education, intercultural education, scientific schools in Poland

1. Introduction

For almost last three decades, the studies on intercultural education have become a part of the Polish social discourse concerning the issues of multiculturalism, the feeling of national, civil, ethnic, religious and cultural identity or the relationships between people of different nationalities and cultures. Social experiences and daily practice confirm the constant need for opening to other communities and their cultures, which means the need for implementing reliable intercultural education. On the other hand, a return to multicultural education can be observed: minority groups again focus on the lasting of their own culture, and researchers, with growing frequency, focus on a selected culture or minority group. In this way, the field of studies and educational practice has been limited and significantly impoverished [1].

Contemporary societies search for solutions to many problems resulting, among other things, from the rapid development of the industrial-informational civilization. The size and nature of this phenomenon is shown by many researchers, who draw attention to the so-called *paradoxical socialization* [2]—people are forced to shape their own life without control over its determinants. This is related to the disintegration of the society into many fields of activity, which do not constitute any unity. The lack of moving around within a unified area of life imposes what is described as *biographical coordination of diversified behavioural logics* [2]. Moreover, tradition and family education are substituted by institutions, media and individual choices. Thus, conducting reliable intercultural education makes it possible to discover and understand oneself from the perspective of noticing and evaluating others. Its fundamental task is shaping the feeling of identity, understood as 'the subject's creative effort indispensable and necessary in the multicultural world, soothing the tensions and contradictions between the constant elements, which are inherited and result from social rooting in a family and local community, the identification with significant people and groups, indigenous symbols and values, and the changeable elements, which are acquired and result from interaction and the experience of participation in culture and social structures. Such understanding of identity opens to the dialogue of cultures, in which the mutual participation in the process of opening to each other is a source of power and raises the feeling of pride because of belonging to a particular group' [3–5].

As the approach promoted in Poland, the ideas and practice of intercultural education seem to deserve broader dissemination abroad. Partially, this has been taking place [6], yet the message of intercultural education should reach even more societies. It is important to act for this education, being fully aware that this is going to be a long process but that it will bring appropriate fruit as well.

These high expectations, requiring pedagogical optimism and the feeling of educational self-effectiveness, might raise doubts and questions among intercultural educators why they are addressed to them. Obviously, these are obligations of all people responsible for education and moral shaping. Yet, special addressees are the communities that have a clear vision of education that brings people together, opens to others and their cultures: the communities with important experiences and achievements.

2. The collected experiences of Polish intercultural education as a pedagogical (sub)discipline

Although Polish intercultural studies have been developing only since the 1990s, they refer to a rich tradition and a well-developed network of notions concerning Polish education, elaborated by the leading scientific centres. In the second half of the twentieth century, these centres initiated and provided orientation to pedagogical research. Since then, they have also disseminated the research results of their studies in Poland and worldwide, contributing to the interdisciplinary view on this scientific discipline.

The theoretical studies and practical research into culturally diversified environments have been initiated and continued by three leading schools of scientific thought, conducting the

studies in the Polish-Lithuanian-Belarusian-Ukrainian borderland (Jerzy Nikitorowicz's team from the University of Białystok), the Polish-Czech borderland in Cieszyn Silesia (Tadeusz Lewowicki's team from the University of Silesia) and the Polish-German-Czech-Slovak borderland (Zenon Jasiński's team from the University of Opole). Intercultural studies are also conducted by university units (departments, chairs and teams) in Bydgoszcz, Gdańsk, Kraków, Lublin, Poznań, Toruń, Warsaw and Zielona Góra.

Some universities implement didactic classes in intercultural education, students' internships concerning this education are also conducted, and there are students' research teams dealing with it. The issues of multiculturalism and intercultural education are frequently explored in BA and MA theses, as well as in doctoral or habilitation dissertations.

According to Tadeusz Lewowicki, the educational experiences and scientific output of the environments exploring intercultural education allow for formulating the opinion that these accomplishments can constitute the basis for elaborating a synthesis, comprising an outline of intercultural education as a pedagogical discipline. In contrast to the earlier cases of using the term intercultural education (in the German and English language literature) [7], when the name comprised some versions of multicultural education and/or only some issues typical of scientific disciplines were taken into account, in the current approach, there is a space for all fundamental components of a scientific discipline and the determinants of its viability [8]. In the case of Polish studies, the components of intercultural education are the following:

• a clearly outlined concept of intercultural education and the understanding of pedagogy pertaining to this field of education. Promoting (in scientific works on intercultural education) such an approach to the issues consists of a coherent set of views and beliefs, which indicates the reflection and activities concerning intercultural education. Referring to the definition formulated by Laurence Kohlberg and Rochelle Mayer [9], it can be assumed that what is dealt with is the legible ideology of intercultural education;

• within educational reflection and practice, a particular relatively precise language is used: in other words, a particular notional network. As it usually occurs in humanities, some of the notions have been borrowed from other disciplines, and some have been attributed the sense typical of intercultural education. What is indicated in Polish pedagogical studies on interculturalism is the need for referring to theories and concepts concerning social behaviour. 'This means justified aiming at better understanding of social phenomena and processes. However, as in the field of pedagogy it is rather difficult to find satisfying theories or concepts, the representatives of this discipline reach into the output of the related disciplines. For years, sociology has been one of them. Others are social psychology or socializing (at the border of sociology) currents of psychology. More references also appear – to historical and cultural studies, studies on politics and religion. Still, it seems that what prevails are the associations with sociology, sociological interpretations of the life of multicultural communities. […] Sociology and psychology enhance the understanding of social situations and behaviours, they suggest various explanations, interpretations' [10]. The confrontation of different approaches—called by Tadeusz Lewowicki sociologism and pedagogism—allows to 'notice important differentiations in the reasoning and acting specific to each of these approaches. In the case of intercultural education, this is a chance

for noticing and understanding the originality and the primary sense of this field of education. In contrast to the typical (of other disciplines) view on the multitude of cultures existing »next to« each other, what is significant in intercultural education is the existence of cultures »together« – with mutual recognition, impact, and acceptance of other cultural influences. This is also a view, more and more close to sociology, on the multidimensional identity of the modern human (who keeps the bonds with the »little homeland«, region, state, society, Europe). This means admitting that, apart from the »given identity«, there can be and there is the »chosen identity«. These and many other issues should be subjected to a multisided (also pedagogical and sociological) observation […] Sociology, even without the undertakings aimed at social changes, provides an opportunity of »monitoring« educational activity, controlling its outcomes, and social perception. This increases the chances, to say it in the simplest way, for rational educational influence. The advantages of some interrelations with sociology are not one-sided. Intercultural education is a field for new observations and sociological analyses. This may be beneficial for both sociology and pedagogy, intercultural education' [10];

- the area of interests, research fields and subjects have been also specified rather clearly, which is reflected in many scientific studies. The interdisciplinary character of intercultural education should be emphasized: the results of research activity of the major schools are presented in the publications issued in the scientific journal 'Edukacja Międzykulturowa [Intercultural Education]' (indexed on the point scoring list of the Ministry of Science and Education) and in the publishing series *Edukacja Międzykulturowa* [Intercultural Education], so far comprising over 150 volumes;

- referring to some related humanistic disciplines, a wide range of methods, techniques and research tools are used in both quantitative and qualitative studies, rich research results have been also collected;

- the research and structural undertakings follow the guidelines of many theories present in social sciences. Polish intercultural education has its own interesting theoretical suggestions, which is not frequent in pedagogy. Tadeusz Lewowicki's *Theory of Identity Behaviours* can serve as an example. It provides a new perspective in the search for regularities, which determine the feeling of identity in the multicultural environment. The theory promotes a comprehensive but at the same time comparative approach to the processes and phenomena taking place in culturally diversified environments. The author distinguishes the following fields (elements) of identity: *the first* comprising historical fortunes and identification with a particular territory or social group; *the second* indicated by the unlikeness of culture, language, transmission of tradition, and the knowledge of the spiritual and material wealth of a particular community; *the third* associated with a specific historical genealogy and specific features of a group (groups) as well as with the stereotypes functioning within it; *the fourth* concerning the economic condition and living standards of a group (groups); *the fifth* associated with needs, life aims and axiological preferences; and *the sixth* taking into account the political, ideological, social and industrial context [11]. Another important theoretical suggestion, very useful in intercultural studies, is Jerzy Nikitorowicz's *Concept of multidimensional and constantly self-creating identity.* It assumes an unceasing process of

shaping and functioning of cultural identity in the triad: inherited identity (natural iden-
tity), acquired identity (identity of 'a role'), and 'Ego' identity (the subjectively felt, present-
ed and implemented identity) [12]. For many years, the discussed theories and concepts
have been successfully applied by intercultural researchers, for example, to design research
methodology and to interpret research results [13–24];

- the historical and contemporary output of multi- and intercultural education has some
comparative approaches and the approaches which constitute the syntheses of earlier ac-
complishments. Intercultural pedagogy has its roots, history and the whole presentations
of the earlier stages. In compliance with the good tradition of humanities, it can be said that
intercultural education has the memory concerning the output of the previous generations
and that it subjects this output to critical analysis;

- the condition of human resources engaged in intercultural education is worth attention.
The number of researchers, scientific development, and the quality of works justify the
belief that the situation of the staff contributes to a favourable prognosis for this scientific
discipline. Over the last few decades, many valuable publications have come into being,
and some new orientations have appeared in the research;

- the scientific environment dealing with intercultural education is well organized in terms
of institutions. What seems to be a huge value is the integration and tight collaboration of
researchers from many academic centres and annual scientific conferences. What should be
also indicated are the traditions of joint undertakings of the Social Team for Research into
Borderland Culture and Education, the Team for Pedagogy of Culture and Intercultural
Education of the Polish Academy of Sciences, and the Association for Supporting Intercul-
tural Education;

- there are explicit and multisided interrelations between theory (theorists and researchers)
and educational practice. Intercultural education fulfils the functions typical of sciences,
which generate practical solutions. Social needs seem to affect the vitality—the research
scope, directions and methods—of intercultural pedagogy [5, 25–29].

3. Current problems and research orientations

Indicating the current most important problems and research orientations in intercultural
education means also making an attempt at eliciting the fields of permanence and change-
ability in typical behaviour patterns in multicultural communities. These issues are worth
the attention due to both cognitive and practical aspects, for example, the usefulness in shap-
ing modern intercultural education. In this context, it seems important to carry out a critical
analysis of the concepts of social, cultural and educational policy, which are formulated in
Poland and in many other countries and which cause that many different solutions concern-
ing education in multicultural societies are applied.

Not only the relatively long tradition of different varieties of multicultural education but also
contemporary experiences confirm that, by protecting a particular culture, this education

gives rise to several problems. What clearly proves the failure of many different kinds of multicultural education are the conflicts in the countries, which are recognized as the models of democracy, for example, the USA or France. The isolation of large social groups, signs of exclusion, stigmatization, poor living standards, social dissatisfaction, and the feeling of discrimination are partially perpetuated by multicultural education, which functions alongside the main current of life [4].

The analysis of numerous studies undertaking this subject matter [30–32] confirms the existence of two different approaches to the evaluations and consequences of the occurring changes:

• the pessimistic perspective, which assumes a crisis of multicultural education as a result of changes,

• the optimistic (reflective) perspective, according to which changes prove its new image, compatible with social changes and the characteristic features of the (post)modern society [33, 34].

Applying the reflective perspective, in contrast to the radical pessimistic approach, seems to be the right direction in pedagogical research into contemporary intercultural education. The multisided approach of theorists and researchers to this issue, as well as the occurring modifications concerning its aims, tasks and functions, makes it possible to notice and understand the problems and insufficiencies of multicultural education and to find the ways leading to positive solutions and appropriate activities.

4. In search for the model (new models) of intercultural pedagogy

Searching for the model (models) of modern intercultural pedagogy becomes an important educational challenge and a frequent subject of expert research. Intercultural pedagogy is most often approached in these studies as:

• *ars educandi*, related to educational practice and comprising actually performed educational activities;

• detailed pedagogy, which is a theoretical and scientific reflection upon educational practice and which possesses its own subject matter, system of notions and methodology [35].

Intercultural pedagogy implemented in the conditions of cultural differentiation takes into account both the transition from *ars educandi* to pedagogy and the above-discussed comprehension of key areas of intercultural pedagogy. Coming back to 'the roots', to the paradigms of the education, to 'absent discourses', it indicates a new way of re-organizing pedagogical work, which is interpreted in the categories of 'the help in development, mutual help and education for development'. Thus, the intercultural perspective in pedagogy constitutes two intersecting paths. The determinant of the first is the knowledge leading from familiarization with (a new code of culture) to understanding another culture ('I know what the new code means'). The second path refers to human interactions and leads from the hypothesis of the contact with the other to cultural training 'imagine you are the other' [36].

Due to the undertaken considerations, what becomes particularly significant is specifying cultural and cognitive contexts of intercultural early school pedagogy, which might be applied in teachers' educational activity.

4.1. Cultural contexts

4.1.1. Relation: individual—culture—education

According to Irena Wojnar [37], culture (viewed nowadays as 'not only the heritage, the universum of creative acts of mankind, but also as the humanistic quality of human activity and lifestyle) becomes the basic educational authority corresponding to a new educational demand which is being born. Education is a way to make culture real—first of all 'the culture in people'. Thus, education and culture determine each other—education enlightens and culture differentiates (as 'an effect' of education), which results in an ongoing process of developing culture itself. In approaching the relation *individual—culture—education*, intercultural pedagogy applies the cultural orientation, which links the sphere of culture with values and personal self-development and which emphasizes the individual's liberty and self-identification (being a subject). In accordance with this:

- the individual is independent from culture, which consists in the freedom of applying an attitude to it (outside or within oneself) and to possible cultural determinism. One of the forms of applying this attitude is self-awareness. This liberty constitutes the specificity and essence of man;

- the specifically human way of existence is in fact the orientation towards values as possible elements of culture. The individual anticipates them and makes them concrete, whereas the elements attract the individual. This is not freedom towards culture but within it [38].

In the suggested approach, what should be important in the education are the processes of culturation, as well as of primary and secondary socialization. On the one hand, they enable rooting into culture (the assimilation of the existing cultural values) and gaining a particular place in the community. On the other hand, owing to the individual's self-fulfilment abilities, they allow individuals to 'create' new, socially accepted values, in the form of cultural products, and, in this way, to create a 'new' quality of the group's or community's culture.

4.1.2. Building the feeling of multidimensional cultural identity

Forming the child's feeling of multidimensional cultural identity in the individual (self-oriented) and social (outer) perspective occurs in the area of: (a) 'I' condition, (b) the concept of oneself in the world and (c) competences concerning activity (possible contacts with the world and relations with others). At the same time, this process is a kind of self-identification which the individual must be able both to develop along with gradual maturing and to redefine during the whole life. The individual's orientation in the surrounding cultural reality, which develops in this way, finds its representation in the system of 'meanings' formulated in particular family, school, and out-of-school situations by people who are important for the individual. These meanings become a source of different values (and their possible 'interpretations'), which come into being, and of developing the ability to judge the acquired knowledge

and experience. Among others, the following are the sources of information about oneself, which might become the foundation of shaping the feeling of identity of the individual in natural and constructed educational situations:

- observing one's own behaviour and its consequences,

- observing other people's behaviour and comparing with these people,

- obtaining information directly from other people (others' opinions about myself),

- social categorizations associated with belonging to particular social groups (categories), for example, family, school, peer group, region, nation, Europe or the world,

- an insight into one's own personality.

4.1.3. Sensitization to the other and noticing unlikeness of people from other cultures: towards the modification of ethnic stereotypes and prejudice

As Henryk Pietrzak notices, stereotyping, most frequently experienced by children in inter-personal and group relations, concerns both individuals and groups or the whole societies, but it starts and ends with the individual's own experience. 'It is the individual's consciousness where generalizations and attributions appear as a result of specific cognitive processes. Evaluating their meaning, the role of perception as the leading process (constituting the base for informative and consciousness-related transformations of other kinds) is usually highlighted' [39]. The perception of the social world comprises already acquired knowledge of co-occurring different human qualities and the knowledge of different types of people and their typical behaviour patterns (which results in an individual way of perceiving others). This process also involves stereotypes and prejudices, which function among individual and their negative attitude to others, including ethnic groups and nations. The results of the studies carried out in this problem area confirm the occurrence of all kinds of stereotypes and prejudices at all age levels of children from 7 to 13 years. The analysis of empirical data concerning Polish learners allow for stating that they have a well-crystallized and rather strongly negative attitude to most national minorities in Poland and that the applied attitudes of unwillingness towards others maintain for a long time, contrary to their peers from Western Europe.

Referring to Barbara Weigl's experimental studies on the modification of stereotypes and prejudices of early school learners in Opole enables to confirm both children's evident proneness to influences, which shape negative attitudes to alien ethnic groups or nations and their susceptibility to activities which weaken such prejudice and stereotypes [40]. This creates an opportunity for undertaking educational activities aiming at 'weakening' the established negative stereotypes and prejudices and their modification.

4.1.4. Intercultural communication and dialogue

'Being' in one's own culture and understanding other cultures is based on language, which, for the child, is at the same time 'a tool' for communicating with the surroundings, 'the material' for creative activity, and an object of exploration. Over the last few decades, due

appreciation of the pragmatic factor has drawn the researchers' attention to the analysis of the development of children's talk in the aspect of the processes of social communication. Along with the children's acquisition of speaking (of specific language codes), they acquire the requirements of the social structure in which they live. The child's experience is transformed as a result of learning, which is the effect of the child's own, seemingly random, speech acts. 'In this way, social structure becomes a substrate of the child's experience, which comes into being through many different linguistic processes' [41]. From this point of view, it should be assumed that each time the child speaks or listens to others' talk, a process occurs that strengthens social structure and forms the child's cultural identity. This phenomenon can also have the following interpretation: individuals achieve control over their social roles through the process of communication.

Children's functioning in the culturally differentiated borderland environment provides them with regular linguistic contacts with their peers—members of other communities and societies—and it quite frequently creates natural situations enhancing simultaneous participation in two cultures and two linguistic systems. Bilingualism, acquired in this way, may have the 'adding' (enabling high competence in both languages) or 'subtracting' character, in which the more prestigious language (of the majority or dominating culture) replaces the first language (of the minority culture) and does not let the individual achieve proper fluency in any of them [42].

4.2. Cognitive contexts

4.2.1. Motivation for familiarizing with the world and learning

Developing individual's cognitive processes and their orientation in the environment is an important aim of education. This development is characterized by intensive motivation for familiarizing with the surrounding world of people, things, and phenomena, as well as for acquiring (in the process of learning) social competences, which determine the efficiency of the individual's functioning in social situations at school and outside it. Developmental theories, which emphasize the cultural and social context of teaching and learning, highlight the role and significance of the double social structure in which the individual participates, that is both the relation with peers (the individual's world) and the 'objective reality'—created, established and imposed by adults. The dichotomous nature of the individual's functioning in two social words also brings about the necessity to fulfil their basic needs, which appear in the process of:

- symbiosis (tight teaming up and union with the nearest environment): the need for *bonds*, closeness and acceptance (in relations with others), which determines the feeling of safety in the human world;

- separation (gradual emerging of I out of the symbiotic unity): the need for *identity*, which enables creating the borderline I: other people;

- individualization (developing the inner I autonomy): the need for *self-fulfilment*, the exploration of the surroundings, and independent activity, which presents the expression of one's own I [43].

The distinguished needs of bonds, identity and self-fulfilment become the basic determinants of the pace, dynamics and direction of individual's cognitive activeness. This activeness allows the individual for a very close relation with the nearer and further cultural environment, which also enhances 'building' the representation of one's own person (among other factors, associated with preserving one's own identity and with maintaining or increasing one's own position in the social system of meanings).

4.2.2. Constructing knowledge at school: learning through intercultural dialogue and contact

Intercultural pedagogy necessitates a different approach to the child's acquisition of knowledge—to the transition from monologue education to dialogue education—which involves generating meanings. As Jerome S. Bruner, the author of the notion 'interpretative phrase' emphasizes, 'generating meanings is linked with placing the meetings with the world in their appropriate cultural context in order to learn "what is it about?". Although meanings are in the mind, they have their source and references in the culture in which they are created. This cultural situating of meanings ensures their negotiating nature and immersion in communication. Whether there are 'private meanings' is not an issue here, what is important is that meanings provide a basis for cultural exchange. From this point of view, 'cognition and communication are, in their essence, highly interrelated, in fact inseparable' [44]. This assumption results in changes in educational theories, which concern such areas as:

- the teacher's knowledge: a significant role of personal pedagogical theories, personal reflection upon one's own practice, the focus on the alternative status of educational solutions;

- the learner's knowledge: the existence of many 'possible worlds' and their interpretations, the understanding dialogue, being ready for 'disobedience in thinking', creative thinking, the school's hidden programme;

- classroom communication: the social character of learning, cooperation in group aiming at the same goal (task), the searching-creative function of speech, the significance of explorative speech (thinking aloud);

- didactic planning: spontaneous experimenting, guidelines, improvisation and goals understood as intentions and general plans.

According to Jerome S. Bruner's concept of education, the thesis treating culture as both the basic orientation of modern pedagogy and education and as the need for cultural enhancement results in defining school as the learning culture. Its fundamental task is supporting children in learning the use of tools for generating meanings and in their adjustment to the world and in changing this world dependently on the needs. Such learning culture should also contribute to shaping learners' identity and self-esteem, as well as it should strengthen the chances for managing at school and outside it [44].

5. Prospects: an attempt at recapitulation

The presented discussion is aimed at becoming aware of the need to promote intercultural education as a current of the modern pedagogical theory and educational practice, compliant with

the current requirements and offering prospects for the desired changes in future. Intercultural education is a chance for overcoming stigmatization, the feeling of alienation and the fear of others. It is also a chance for shaping the multidimensional (enriched) identity, in which national or religious identity constitutes an important part but does not suppress the other areas of identity, does not require rejecting the people and values not compliant with the orthodox (far from life in the multicultural world) images of the group and individual identity. What becomes a necessary value in the contemporary world is the openness of cultures, which does not mean the lack of selecting the acquired influences. Only a friendly turn towards other cultures, a really personalistic view on other societies (and at the same time on particular individuals who make up these societies) can lay the foundations for building a new intercultural space [45]. However, this cannot mean uncritical acceptance of all cultural influences. Acquiring the values of other cultures should take place through openness, supported by kind-hearted criticism with the simultaneous acceptance and emphasis on every person's unalienable right to freedom.

As the current globalization processes cannot be inhibited, this issue will not lose its topicality. What is needed to prevent a lot of conflict-rising tension resulting from these processes is an idea, which will indicate the rules of conduct. It is universalism, open to all topics, questions, accusations, which can become such an idea. Universalism 'should be directed towards the holistic rather than fragmentary approach. Yet, this does not mean that universalism has a hostile attitude to diversity. Such type of the whole that is appropriate for an open process of reasoning tolerates and praises individuality, differences and even contradictory views. However, above this – there must be a total unity and harmony, a fundamental set of principles, accepted by all thinkers' [46, 47].

Aiming at universalism in the new reality is not merely a whim but a necessity. It becomes a chance for a conflictless and fruitful encounter with the other. What seems important while heading for this is not to resign from the own traditions. Being rooted in the local ethnic culture offers the possibility to accept universal values and, at the same time, it protects individuals from diluting their identity.

The theoretical suggestions and practical experiences defined as intercultural education seem to undermine the ways of reasoning and the educational activity, which have been perpetuated for over a century. Understanding the chances offered by intercultural education and accepting the applied educational practices require time. They also necessitate authentic engagement of many social groups, which have a strong influence on shaping human attitudes. In spite of many difficulties, making use of these chances is worth a lot of effort [48].

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Education (*Bildung*) for Values

Zdenko Medveš

Additional information is available at the end of the chapter

Abstract

The article develops the thesis that a universal value basis for holistic education (*Bildung*) is provided by a plural moral system in which various ethical discourses are constructively interwoven. This is more successful for education and allows the individual a broader evaluation of alternatives in moral action. The plurality of a moral system supposes the presence of various ethical discourses, including the ethics of human rights (liberal discourse), the ethics of the common good (communitarian discourse) and the ethics of interpersonal relations (the ethics of care). In interweaving all three of these discourses in education, the teacher should use common sense, which we define as the power of judgement and a sense of community. This is followed by views on how to model organise educational practices that stimulate the creation of an ethically plural educational environment in open communication, where the learner develops the ability to make judicious decisions with regard to moral action without having to submit passively to common norms.

Keywords: human rights, liberal discourse, communitarian discourse, discourse of the ethics of care, the child as the medium of education, education as internalisation and as communication, autopoietic pedagogy

1. Introduction

The primary topic of pedagogy (Slovene: *pedagogika*; German: *Pädagogik*) is **vzgoja**. The Slovene term *vzgoja* is translated here as "education," but it should be noted that we understand *vzgoja* more as an approximation of the German category of *Bildung*[1]. Enquiry about education (*Bildung*) is the essence of pedagogical enquiry. Education (*Bildung*) is education

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[1]The English translation "education" will be followed by the German word *Bildung* in brackets in those cases where education is meant more as the formation of spiritual image (internalisation of an image of humanity or the social), but not where it is used as a common term or as a predominantly instrumental process (development of the capacities of judgement, evaluation, learning; sensibilisation of the emotions).

(*Bildung*) for values par excellence. For values in different fields: aesthetics (the beautiful), ethics (the moral), science (truth), physical development (the body), sport, interpersonal relations, attitudes towards the self and others, attitudes towards nature, the economy and so on. The acquisition of knowledge and the development of abilities is somehow secondary, but nevertheless important, because knowledge substantiates and supports values. Without knowledge, education (*Bildung*) for values would be a naked ideological construct [1].

Pedagogy is conceived as a normative discipline. Without an answer to the question of what the goal of education (*Bildung*) actually is, it is blind as a science and unable to defend itself against the multiple influences through which various centres of influence and power attempt to win over young people in modern society. That is why values are so much in the foreground in pedagogy. In this article, we will first consider the goal of education (*Bildung*) on the basis of theoretical analyses of various ethical discourses in order to consolidate the theory of the importance of pluralism in the educational concept of the public school. We will conclude the article with a conceptual proposal for the implementation of educational practice, where we propose a model of *differentiated moral communication* through which an open space is created for moral judgement and decision-making on the part of the individual, who is at the same time encouraged to reflect on various fields of the moral: human rights, the common good and the quality of interpersonal relations. The differentiated moral communication model is based on numerous reports from educational practice prepared by students of educational sciences at the Faculty of Arts in Ljubljana over the last decade.

2. Inculcation of values or obligations towards the law

How to prepare young generations for life is a fundamental question of human evolution. No period and no civilisation have been able to avoid it. Every civilisation has approached the search for the right path in its own way, and numerous possibilities have developed, including some that have been controversial. Every period and every social community have traced its own paths, since education is a typical phenomenon of culture and cultural differences. This means that evaluating educational practices is never simple. It is only in the last half-century that children's rights and human rights have started to be treated as an important criterion for the assessment of educational practices. Regarding the aims of education, pedagogical theories still offer no clear answer as to what is more important when it comes to preparing the young generation for life: a vision of the future of society or an empirically clear conception of how to trace a path in such a way that the individual will be able to walk along it independently. Some pedagogical theorists devote far more attention to developing ideals, while others emphasise the young generation's right to shape the culture of its own life. It may be that behind all the controversial possibilities that history has brought to our understanding of the education of the young, the most difficult question is whether the adult generation is entitled to decide on what path is right for the young generation. This is, in fact, the eternal question of what values in education should be based on. On the one hand, there is the awareness that we always decide on the education of children and young people with the perspectives of others, and it is therefore fair to think about what perspectives are best for the

young generation and what is good for the child [2]. On the other hand, there is the common good as a starting point. Plato illustrated this very dramatically in his allegory of the cave, out of which only a philosopher can lead us from imprisonment in the world of shadows towards the light that "is indeed the cause for all things of all that is right and beautiful … and that anyone who is to act wisely in private or public must have caught sight of this" [3]. This path from the cave is the Greek *paidea*: education (*Bildung*) from slavery to humanity.

Two views of values are highlighted, leading to very different attitudes about the importance of the human being as individual. Plato understands value as valuable in itself. It is universally valid and the individual human being can add nothing to it. Mollenhauer, on the other hand, takes the perspectives of the young generation and the individual as a criterion, rather than universal validity. Value thus "arises" in a concrete discourse of existence. It is not definitively clear where the answer to the dilemma of Mollenhauer and Plato may lie. Even contemporary pedagogy, which adopts a different attitude towards the child from that adopted by traditional pedagogy, is unable to renounce offering young people ideals as a form of imagined excellences in the development of abilities and moral virtues. This striving towards excellence is supposed to be encouraged today by education for human rights [4]. Even when it comes to exercising human rights, it is never possible to be satisfied with what has been achieved, since societal practices show that the exercise of these rights is not self-evident, and there is no guarantee that the achieved state would be maintained without striving towards a better one. On the one hand, there are calls for pedagogy to give up the idealisation of educational objectives and replace them with realistic and realisable goals, and above all to build on the understanding of the child as a capable, rich being [5]. Even today, pedagogy has no true response to this alternative. On the other hand, the advocates of realism are increasingly rare among theorists, while the majority continue to impose new and increasingly idealised tasks even on the modern school. It not infrequently happens that these tasks are mutually contradictory in their very essence.

The challenges of modern pedagogy also derive from the crisis being suffered by the sciences that border on it and on which it has relied. Let us take Herbart's *Allgemeine Pädagogik* from the early nineteenth century, on which the stable primary school practices of education (*Bildung*), teaching and learning were based for more than a century, until somewhere around the 1930s. This built on a widely held belief in the solid applicability of associative psychology and Kantian ethics. Today, on the other hand, proficiency in psychology is common to the many fields from which the various schools of thought about successful teaching and learning grow, and this in itself is a challenge. While a pluralism of views enriches the educational practices of teaching and learning, it leads to a series of difficulties in the field of education. Dilemmas for education also arise in the ethical field, particularly when ethicists, philosophers and anthropologists talk about a decline in values, the twilight of ethics and morals and the loss of conscience and intimate personal soul-searching.

Can human rights fill the moral vacuum in modern society? It is true that they are conceived as a common ideal of all peoples, but their implementation in the legal system can cause problems, as we will see below. Will the law be able to substitute ethics and morals? With what consequences? If we transfer the ethical criteria of public life into schools, we can expect schools to react to this and only prevent that which is prohibited by rules. In this way, education (*Bildung*)

would undergo a complete shift of paradigm: education for values would be replaced by the development of obligations towards the law and rules. We could characterise this is a paradox: school-based education for values without values, since legal norms form the field of constraint (discipline) and values the field of freedom (vzgoja – *Bildung*). Instead of awakening the internal voice of the conscience, school would reinforce the fear of punishment. When education does not reach deeply into the interior of a person, it disappears as education (*Bildung*). But fear of punishment is already traditionally understood by pedagogy as *disciplining*, not as educating. To paraphrase Kant: discipline is a condition of freedom; it is only a condition, but freedom is only enabled to the subject by cultivation. Without education (*Bildung*), the process of humanisation of a human being is not possible. An alternative announces itself in the development of the school: education or discipline? Successful education (*Bildung*) for values can of course be maintained if the school is based on a clear value system, which, with regard to criteria in public life, clearly means that ethical standards in the school must be higher than in civil society and commercial transactions. Immorality must not be permitted among students.

It should be pointed out that a lower tolerance of evil and the demand for higher ethical standards in schools and in public life trigger an enormous mass of problems. The question that raises itself is that of how to present higher life preferences to young people in schools when public experience shows them that envy, greed and shamelessness are becoming everyday emotions. How are young people supposed to accept higher ethical standards when they are constantly faced, in everyday life, with the facilely narcissistic ideology of a modern society that cultivates the belief that the individual should not be frightened of difficulties because the opportunities for social success and advancement are unlimited? Neoliberalism further strengthens narcissistic ideology, in that it satisfies ambitious interests and encourages the idea that every individual can create a position for themselves and acquire wealth, and that opportunities for advancement and social ascent will offer themselves spontaneously. In this logic, even education as a factor of upward social mobility has lost much of the lustre it still possessed during the expansion of education in the middle of the last century. This introduces further disquiet into schools. As Beck says, formal education may still be necessary, but it is no longer a sufficient condition to guarantee better employment and more prestigious jobs for all sections of the population. Modern society really does tell the individual that they can achieve everything, that everything is possible, but on the other hand, warns Beck, even the simplest glance at social reality, as revealed by simple statistics, shows that we are living in a risk society where opportunities for growth and prosperity are always matched by the equal possibility of collapse and destruction [6]. If we follow the idea of *Risk Society*, we find that the expansion of education is merely a product of neoliberal logic. Society offers opportunities for education to everyone, which strengthens the idea of the success of the individualistic society more than it provides realistic life prospects. In the end, however, the individual is also to blame for collapse and unfortunate circumstances in life. The "society of possibilities" is thus at the same time a "society of risk." This is a consistent derivation of neoliberalism. The individual is ultimately to blame not only for their social rise but also for their fall. The state offers fewer and fewer guarantees and there is increasing indifference towards citizens' rights. Social rights are somehow pushed to the margin, including the right to education. Expressions of cynical indifference include non-binding constitutional provisions that are

supposed to resolve the question of social inequality and selectiveness in education[2]. All this is merely proof that there is insufficient willingness in politics to address the problems of inequalities in society, which for schools and the education (*Bildung*) of modern youth is a serious burden.

3. Ideological uniformity, emancipation and the plural community

The more frequent questions of the modern theory of education and educational practice are those deriving from difficulties related to pluralism. In one way or another, all the dilemmas of education, in particular, those that revolve around values and, consequently, authority, are tied to pluralism. Pluralism has always represented a problem for pedagogy. In traditional pedagogy, which derived from religious and philosophically and ideologically unitary views, pluralism was "guilty" of educational ineffectiveness, since this pedagogy believes that the more uniform the education (in terms of views and values), the stronger its educational effect. Cultural pluralism and, in particular, the pluralism of values and views, was believed to create a confusion that reduces the clarity of the educator's messages and preferences and thus dilutes the effectiveness of the educator's endeavours.

The question is: can pedagogy theoretically justify pluralism as its ideal? This would have been impossible even in the middle of the last century. Education (*Bildung*) in the spirit of the historically tried and tested 2000-year tradition and classical European culture was the only framework that filled teachers with confidence in the effectiveness of education (*Bildung*). The provocative new elements born of the art of the first half of the last century could not get through the school door. Not even critical pedagogy accepted the idea of pluralism, in the sense of cultural pluralism, as its central aim. Critical or emancipatory pedagogy (both terms were used by mid-twentieth century German theorists such as Wolfgang Klafki, Klaus Mollenhauer and Herwig Blankerz) was in fact tied to the critical theory of society and defined the goals of education as the formation of the mature, critical and emancipated subject [2]. Within critical theory, however, Horkheimer's investigations showed that emancipation can also be a mistaken educational goal. Horkheimer developed the concept of emancipation in two mutually incompatible senses. First, he defined emancipation as a behaviour (*Verhalten*) oriented towards the liberation of the human being from dependence on irrational social mechanisms and pressures. In this interpretation, emancipation is the central positive message of the critical theory of society. The aim of emancipation is to rearrange the irrational and ideological mechanisms of social cohesion into a free arrangement of the life of society founded on reason [7]. Emancipatory pedagogy did not highlight this social dimension of emancipation in its interpretation of the aim of education, as may be understood from the above quotation from Mollenhauer. Instead it understands emancipation individualistically, as the opportunity for

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[2]The constitutional provision that put an end to the fierce political debates about social selection in the Gymnasium system of upper secondary education is a true caricature: "A child's aptitude, interests, performance and inner calling shall be authoritative for his/her enrolment in a school rather than the economic and social position of the child's parents" (Constitution of the Free State of Bavaria, Article 132). This is reminiscent of the caricature of justice and equality expressed long ago by Anatole France: in a democracy, it will be forbidden for both rich and poor to sleep under bridges.

individuals to freely realise their life prospects. Horkheimer later observes this goal in the context of the study of negative dialectics and distances himself from it. Because individualistic emancipation really means, first of all "an enormous extension of human control over nature … which finally becomes an obstacle to further development and drives humanity into a new barbarism that ends in an irrational system of division of human domination over nature, in which, within the social organism, man's domination over nature is reproduced as man's domination over man" [8]. Horkheimer thus understands emancipation as an ambivalent phenomenon that is realised in opposing value dimensions, and thus talks about "benign" (*gutartige*) and "malign" (*bösartige*) emancipation. The process of emancipation in society always contains the risk of "benign" emancipation being reduced to "malign" emancipation.

A critique of the individualistic understanding of emancipation is also offered by Hannah Arendt. I cite her because she shows how emancipation can oppose pluralism. In her opinion, the autonomy of the individual is the myth of the atomised modern society, since "sovereignty, the ideal of uncompromising self-sufficiency and mastership, is contradictory to the very condition of plurality. No man can be sovereign because not one man, but men, inhabit the earth" [9]. Arendt accepted pluralism as a fundamental characteristic of human existence and action, since "to be" means "to be among men" [9]. In her opinion, a unitary ideological system represents the same threat to plurality as an atomised modern society and moral individualism. We will encounter this question once again when considering the problem of individual morality (which we shall analyse in the context of the implementation of human rights within the legal order) and will arrive at similar conclusions. Arendt's *vita activa* is conceived as an anthropology that defines the three key aspects of the human condition: labour, work and action. It is *action* that is the essence of human existence. Within it, we might also seek important implications for the modern understanding of education. For an individual, as Arendt puts it, can live in society without ever doing anything or even creating anything, but cannot live without acting [9]. Action for her means a sign of integration between people, and it is in integration that the essence of pluralism lies. That which takes place between individuals always points to their uniqueness, diversity and difference. Pluralism is a substantive point of human existence. Plurally understood interpersonal integration is the core of all other integrations, including the integration of customs and values.

4. The educational power of the content of values, social context and formal moral principles

Pluralism is thus in a certain sense a solution even in the postmodern era, where, on the one hand, education is pushed into an amalgam of competences, while on the other there is talk of the twilight of ideologies and values. This provokes the question of how, in such a society, to plan education in accordance with the categorical requirements of classic moral principles such as the Golden Rule (do unto others as you would have them do unto you). Elster posits the question even more radically. How should I respect the golden moral rule if I can reasonably expect that acting in accordance with this rule will not be reciprocated? Is the individual obliged to act morally in situations when others do not? Does this not also nullify my obligation in respect of the moral law? What answer does pedagogical theory give? We cannot but agree

with Elster that "the moral obligation in such cases may be quite different from what it would be on the assumption of universality of moral behaviour" [10].

Deriving from Elster's question is the currently extremely widely held opinion that it is simply not possible to understand a value correctly if we do not place it into a real context. The importance of real context for moral decision-making is greater than an abstract moral principle or value. That is why moral education today cannot close itself in the safe framework of the tradition of 2000-year-old values. Much has changed even in the way we talk about morals and moral education. Even in everyday speech and theoretical discussions, a certain discomfort can be sensed when we talk about "morals" or "moral education." The very phrase "moral education" sounds patronising and archaic. It contains no hint of the autonomy that, for the morally mature individual, is something as self-evident as the universality of moral principles or values. That is why, rather than about "moral education," we prefer today to talk about "formation of the moral self-image," in this way hoping to express the point of our previous reflection, namely that we understand the formation of the moral self-image far more broadly than moral instruction or a moral lesson. In the foreground, we place the educator's task of awakening in the child an awareness of the context of moral action, so that they become sensitive to the feelings of others, make independent and considered decisions about their actions and, finally, create and define their own personal ideals. This, however, requires a change in the way we view the importance of the content of values. As we will see later, formal moral principles (for example, the Golden Rule, Kant's categorical imperative, Aristotle's doctrine of the mean) are more important for the development of moral self-image than the content of values. The formal moral principle, in the words of Renata Salecl [11], is a substantively "empty universal idea… that can perform an affirmative and critical function" in the moral decision-making of the individual. Because of its "emptiness," it has a universal character and in every context enables a judgement that is the basis for a duly weighed moral decision. It might be better to talk about the "self-formation of the moral image" than about formation of the moral self-image. Here the emphasis on the activity of the individual is even greater and induces pedagogical reflections on our willingness to completely change our view of the process of socialisation and to talk instead about self-socialisation or self-education. It is of course worth being cautious about this idea, since it verges on the known phenomena of those free schools which the environment has proved unable to accept because they have slid into an anarchic educational style when teachers have been unable to respond productively to the freedom of the children. The schools that have been able to do this have been successful, as demonstrated by, among others, the classic case of Summerhill, the boarding school founded by A. S. Neill.

Among the attempts to enable pedagogical theory to go beyond the paternalistic orientation of moral education is the substitution of the expression "moral" with the expression "prosocial." Prosociality brings three important advantages to the theory of socialisation: (a) it highlights the importance of social situation or context, (b) it places the learner in an active relationship and, most importantly, (c) it places the *experiential learning of moral relationships, practices and values* in the foreground [5]. Compared to moral instruction, persuasion, example and other methods of traditional paternalistic moral education, prosociality is a highly complex phenomenon. For example, it also inherently includes the practising of various virtues such as participation, tolerance, cooperativeness, support for common goals and sensitivity in interpersonal relations.

The problem, however, is that it is not possible to unconditionally ascribe to the principle of proactivity the universality that applies to moral principles such as the Golden Rule. It is a similar situation with responsibility. In the case of responsibility, it is necessary to ask "responsibility to whom and for what," and in the case of proactivity, we have to ask "proactivity with whom and in what." Responsible (proactive) cooperation in an immoral action—in fraud, for example— is immoral. The essence of the moral thus cannot be defined either by responsibility or by proactivity. The same applies to other values such as freedom and justice. In reality, moral dilemmas are not clarified for us by values or their content. The response to dilemmas is to think about the quality of the objective that the individual is attempting to achieve responsibly, proactively and fairly. It follows from this that it is not possible to conclude directly from the *content* of a value whether a moral decision is good or bad. It is, for example, difficult to say in an absolute sense what is just. Lempert [12] thinks that expressing a *negative* assessment, in other words defining what is *not* just, is easier than assessing what is just. The value of justness, for example, becomes relevant in the case of an apology for or criticism of social inequality. But who in society should be the measure of what equal treatment or equal access to social goods actually means? May we (or should we) consider equity in access to goods on the basis of how this is experienced by those sections of society that feel discriminated against or underprivileged?

Numerous discussions also draw attention to the fact that in the case of education for values it is necessary to take into account the nature of different values. Oser and Althof [13] believed that fundamental values should be given a special place in education compared to concrete values. Concrete values (possessing a toy, visiting a friend, helping the poor) should be preferences which can be established through observation of a concrete individual in concrete life circumstances and which may therefore be exposed to constant judgement. This also resolves to a certain extent the question of sensitivity to context. The problem, however, lies with fundamental values. In the opinion of Oser and Althof, it is not possible to understand these values when we are thinking of something concrete, and it is therefore simply not possible to judge them in concrete situations because, by their nature, they have universal value. This is a question that is also triggered in the case of human rights. On the one hand, they demand concrete engagement, while on the other, as commonly universal rights, they are not sufficiently transparent, particularly when it comes to their mutual hierarchy, when, for example, insults and hate speech are propagated in the name of the right to freedom of speech. Fundamental values (responsibility, justice, freedom, equality) should be able to be proved by intercultural studies, by the fact that some values are above concrete values and also above culturally specific values and we are able to attribute them the same moral criteria everywhere [14] stand these values when we are thinking of something concrete, and it is therefore simply context. According to Oser and Althof, taking context into account in the education process could, in the case of fundamental values, lead to a relativisation of values and to a dilution of them that would make it impossible for young people to adopt a value as something that is their own and they accept as a value towards which they strive for its own sake.

Attention is also drawn to the different position of "values" in education by the theory of social domains, which distinguishes between the moral and conventional domain and the domain of personal choice [15, 5]. This theory recommends that schools act differently in relation to the different domains. They should deal more tolerantly with personal choices and treat infringements

of conventional rules consistently, in accordance with the rules, while moral domains require special treatment because of their complexity. They contain norms on which the agreement (non-violence) that applies to conventional norms is not possible. The critical point of the theory of social domains perhaps lies in the actual classification of domains, above all in the danger that differences in the treatment of domains are absolutised into a didactic rule and, as a result, less attention is devoted to consideration of context in education.

Modern theories offer no concrete new answer to Elster's question of how we should act when we cannot expect reciprocity of moral action. The theory remains at the level of a warning to give careful consideration to context. We do, however, find an answer from the past, one that is precisely 101 years old. On the last page of his *Democracy and Education*, right at the end of his reflection, Dewey writes: "The something for which a man must be good is capacity to live as a social member so that what he gets from living with others balances with what he contributes" [16]. This formulation is somewhat similar to a categorical moral principle but in fact hypothetically expresses the requirement for proportionality in action. Elster's dilemma is thus an old one and a part of the life of society in all civilisations. The appeal to proportionality has always been a matter of the judgement and decision of the individual. Seminar students have frequently argued about whether Dewey's proportionality principle is an invitation to the morality of revenge, before finally concluding that it is an invitation to everyone to act positively towards others even in unfavourable circumstances, since according to Dewey's principle they can expect a positive response.

The pluralism of the modern age introduces a new characteristic to proportionality of action in that it also requires us to understand the customs and habits of other cultures and to recognise their moral code, before accepting a given action as immoral. Once again the idea is confirmed that moral activity cannot be understood simply and is not "learned" without wise judgement and *sensus communis* or "communal sense."

5. The school and ethical pluralism

5.1. On ethical pluralism

Ethical pluralism needs to be explained in more detail, since I am thinking here not only of a diversity of values, but of something deeper, of the pluralism of ethical discourses or paradigms. If we follow the structure of ethical discourses used by Kymlicka in *Contemporary Political Philosophy* [17], we find that political philosophies are characterised by three ethical discourses: liberal (libertarian), communitarian and the ethics of care. I shall begin by giving a brief and general definition of all three discourses. The *libertarian* discourse places freedom and autonomy in the foreground. Its key value or virtue is justice, and human rights are its key civilisational achievement. *Communitarianism* places commitment to the community in the foreground. Its key value is the common good, within which social rights are fundamental values and solidarity is a fundamental virtue. The *ethics of care* is focused on the intimate sphere of life, on the quality of interpersonal relations, on a feeling of connection and human closeness. Its fundamental virtue is positive acknowledgement of one's neighbour.

In contemporary public life, politics and even theory, attitudes towards these ethical discourses are not balanced. The ethics of care is the discourse that is most frequently pushed to one side. It is often said that it does not belong to public life but to family, friendship and other intimate spheres. Infringements of human rights are manifold (migrants, poverty, precarious employment); social practices are woeful in terms of the realisation of human rights and are characterised by the interests of capital and the private and particular interests of various social groups. When it comes to values, *it is not their content and message that are important but practice*, in other words what we have really achieved on their basis. Can the blame for poor practices be attributed to an implementation of human rights into which specific ideological models of an atomised society are inscribed, models which cause an inadequate social reality and prevent us from creating a culture of justice and the safeguarding of human rights in society? At least two ideological models deserve to be exposed as such an obstacle: *legal logic* and *moral individualism*.

5.2. Human rights are not implemented in the legal order as ethical values but as legal norms

I shall analyse the above statement by looking at how the concept of human rights is posited in Slovenia's Constitution, which, however, merely transposes constitutional solutions found in other European countries. Let us consider the following quotation from an interview with Jambrek, one of the fathers of the Constitution, published in a leading Slovene newspaper: "We were more interested in what to do with human rights [and] whether socio-economic rights belong in the chapter on human rights and fundamental freedoms. We unanimously agreed to consider as human rights and freedoms anything that is legally actionable. There are some 'rights' for which the individual cannot expect a court to approve their 'claim'. We therefore referred to these 'rights' as 'socio-economic relations'" [18].

Human rights are therefore legally codified and the ultimate responsibility for their understanding and interpretation lies with the court. This logic is also followed by the further legal instrumentalisation of rights in laws and other regulations at the state level and also at the level of rules within individual institutions, including in schools, in their own rules and regulations. This legal instrumentalisation of rights is, in my opinion, the origin of the incorrect perception of the role of rights in society, and precisely this perception has had numerous negative consequences. Among other things, it has prevented a culture of human rights from establishing itself in society as the foundation of an overall social ethos applying to the whole of the life of society, in all public social practices, and also in mutual relations, in other words in private life.

In my view, the legal codification of the content of rights implicitly means a devaluation of their value core, which also results in a loss of their ethical dimension. The ethical dimension in fact presupposes my subjective truth and responsibility towards others and the world in general. In legal codification, on the other hand, my subjective truth has no value, and until the court makes its ruling it is not clear whether, in a given case, we can talk about an infringement of a right or not. This, however, excludes the importance of the conscience, both in motivation for action and in judging that action. In judging an action or in the motivation for that action, the "silent inner voice" of the individual is therefore unimportant, since everything is ultimately dependent on how the matter turns out in the proceedings of formal judgements.

This is being demonstrated with increasing frequency by numerous cases at various levels of the life of society. Making decisions on infringement of human rights is sometimes too hard a nut to crack (in the sense of reaching a unanimous decision) even for Constitutional Court judges, who have the ultimate competence for the protection of human rights.

Naturally, though, we cannot conclude from the numerous inconsistent and contradictory legal decisions regarding human rights that the value system of human rights is empty and that we may arbitrarily fill it over and over again with experiences and concrete cases. Inconsistent decisions can only prove the vagueness and lack of transparency of the legal code of a right, but they say nothing about its value code. A concrete example illustrating the truth of this statement would be the September 2017 ruling of the European Court of Human Rights on whether a company monitoring private communications on workplace computers constitutes an infringement of employees' right to privacy [19]. The ruling adopted by the ECHR went against an earlier ruling by a Romanian court, yet even so was not an arbitrary decision. When making its ruling, the ECHR saw in the value of privacy a new dimension that *inherently belongs* to the value of privacy *but had previously been overlooked*. According to the court's judgement, this has the nature of a precedent, which means that it will be universally applicable to all future cases. The essence of the problem lies in the fact that it took a court—and one of the highest instance—to arrive at a new understanding of the ethical in a right. How can we expect the full value core of a right to be perceived by a citizen, by a teacher or, last but not least, by a child? How then is it even possible to devise education (*Bildung*) in the spirit of human rights? Should education (*Bildung*) become the study of case law and thus be instrumentalised and lose its formative (*Bildung*) sense? What is the answer to the eternal question "is it possible to learn virtue?" Yes, it is possible, but virtue is not knowledge though without knowledge it is not possible. Someone who does not know that any action can be dangerous, that it is possible to evaluate it as both good and evil, will see no danger or evil anywhere, nor will they be sensitised to it. But this is not enough for the creation of a culture of human rights, since emotions, volition and sensitivity to moral action are of central importance in the development of a culture. This can only be achieved in communication and only via intersubjective interpretations based on value judgements of actions, motives and intention.[3]

5.3. Human rights, moral individualism and the disproportion of rights and obligations

The liberal logic by which the safeguarding of rights is posited in the Constitution also contains a particular problem, namely the understanding of the relation of obligations and responsibilities of the individual and the institution. Every right implies an obligation, but the question is:

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[3]In one seminar with students, we considered the case of the class teacher who wrote to the parents of all his pupils informing them of the marks obtained by each pupil. This is an infringement of the right to the protection of personal data and also a criminal offence; regardless of the teacher's purpose and motives for doing it. The dilemma which the seminar students attempted to answer was this: if a pupil discloses a classmate's marks, have they also infringed the latter's right to protection of personal data? They may have, but there are no sanctions in this case. In terms of the ethical assessment of such an action, the *question of their motives* remains open. An ethical dimension is thus established. *The ethicality of a given norm (in this case the right to the protection of personal data) thus only arises in the relationship of two equal subjects and does not belong to the norm in itself.*

whose? Merely of the institution that is supposed to protect that right or can it also trigger the universal sense of obligation of every individual towards others? In this connection, Kymlicka recapitulates the position of Sandel and Taylor when they attribute moral individualism to liberalism [17]. Moral individualism derives from the thesis that rights take precedence over all other moral concepts such as obligations, the common good, civic virtues and personal virtues. Moral individualism understands the individual as the basic unit of moral value, which means that it requires the derivation of the duties of higher units (the community) from obligations towards individuals. In this way, the burden of duty is essentially shifted from the individual to institutions. This is the impression created by constitutional solutions, namely human rights and fundamental freedoms are only infringed by the institutions of formal power.

This liberal logic, however, has long-term consequences in the way it understands the origin of infringements of human rights and probably contains the kernel of the views of a certain section of the public, including teachers and educators, that only citizens have rights, while institutions only have obligations, at least as far as the rights of the individual are concerned. Similar views regarding the disproportion of rights and obligations also prevail among those working in education. It is true that among them we also find absurd views, for example, that students today have too many obligations, but the majority consider, more realistically and in accordance with the communitarian critique of liberalism, that there is a disproportion between the rights and obligations of the school and students/parents, because the school only has obligations while students/parents only have rights. This opinion, then, is not the arbitrary view of those affected, but rather has its theoretical basis in the communitarian critique of the liberal model of moral individualism, which has written itself into human rights, not into their nature, but into their implementation in the legal order. The liberal discourse and moral individualism simply cannot be accepted as universal in pedagogical reflection on the educational aims and educational concept of the public school. This platform is too narrow for education (*Bildung*) for values, because it forgets the sense of community and the quality of interpersonal relations between people in everyday interactions.

5.4. Communitarianism and solidarity in the creation of a just society of common good

So far, we have only touched on the theme of moral individualism in a single question, namely the question of what kind of relationship between the rights of the individual (student/parent) and the obligations of the institution (school) is created by the model of moral individualism. We have shown how awareness of this issue is strategically important for the school, in particular, for the planning and implementation of the concept of education. Yet this question does not clarify all the consequences, including some significant consequences, that moral individualism has for the school. More important for the recognition of weakness of doctrine of moral individualism than the question of who has rights and who has obligations is the question of whether important rights, values and virtues exist in society that are insufficiently recognised as a result of liberal discourse. Let us look once again at part of the statement of the former constitutional lawyer and co-creator of Slovenia's constitution, Jambrek, in the interview cited. Jambrek says "there are some 'rights' for which the individual cannot expect a court to approve their 'claim'," and that these have therefore "found their place in our Constitution

as socio-economic relations" and not as rights. "The current Constitution, for example, talks about the social state, but this is not operationalised. Not even the Constitutional Court has occupied itself much with this principle to date" [18]. Thus, there exist outside the legal order, alongside individual human rights, certain special "rights" for which, under legal logic, liberal discourse does not recognise the same status in society as is enjoyed by individual rights. The consequence of this is that individual rights take precedence over social rights in society. An even more radical conclusion is possible. This legal structure even negates social rights as rights, since it refers to them as socio-economic relations, in other words as an economic category. In this way, liberal ideology destroys the balance between human individuality and sociality. If we follow the communitarian critique, by adopting the principal of the primacy of rights, liberalism places other moral concepts (duty, common good) into the background [17]. A hierarchical relationship is established between individuality and sociality, the consequence of which is that sociality and social rights are necessarily marginalised in society. Not only that, but virtues that are important for the social society, and *solidarity is in first place* here, become mere ideals to be used for educational purposes or in the charitable campaigns of civil society and the public media. Yet politics, faithful to the logic of economising and balancing public finances, first intervenes in the social sphere. It therefore also has a constitutional basis in the fact that social rights are not rights but socio-economic relations. This empowers its moral position, since it does not infringe constitutional social rights but rather, as some nonchalantly put it, is merely coordinating economic and social relations with real possibilities. In accordance with the liberal attitude towards individual or social human rights, the state pushes social issues to the margins and is not capable of eliminating even its own poverty. The marginalisation of the social and the preference given to individual rights is in essence a class issue. The state based on the rule of law plainly protects above all the category of individual human rights (we know how this works in practice), so when we talk about justice in society, references to the rule of law are an increasingly frequent mantra, while nothing is heard about the social state.

The hierarchy of the individual and the social is not theoretically justified, not least because it is impossible to realise individual rights in a socially unjust society, just as it is impossible to create a just society if the rights of the individual are not guaranteed. Extreme communitarians, among whom Kymlicka also includes Marxists, would claim that in a true community the principles of justice are unnecessary and that justice is merely a remedial virtue [17]. It is thus only relevant in society because of the mistakes caused by an unjust social order. Some remarkable illustrations of this can also be found in former Yugoslav education policy. For example, the principle according to which only a unified (common) school is a fair school, while all forms of differentiation, heterogenisation and individualisation are unfair. The word "fairness" did not appear in education policy documents, and unity was a synonym for the fair school. On the other hand, pedagogy and psychology critically observed that the unified school cannot be fair because it neglects the individual and functions as a Procrustean bed. Unsuccessfully. For more on this, see Medveš [20]. The theory of justice as a "remedial" virtue can even explain the illusion of socialist ideology that, thanks to the "just social system," human rights are not necessary in such a society. This was a mask used to excuse infringements of human rights.

Kymlicka establishes an interesting dynamic of historical development between liberalism and communitarianism. "In the 1970s, the central concepts were justice and rights, as liberals

attempted to define a coherent alternative to utilitarianism. In the 1980s, the keywords became community and membership, as communitarians attempted to show how liberal individualism was unable to account for, or to sustain, the communal sentiments, identities, and boundaries needed for any feasible political community" [17].

When it comes to school and education (*Bildung*), the hierarchy established by liberalism between individuality and sociality is a significant obstacle to the development of civic virtues and the moral image of the young generation. Just as education subordinated only to the values of communitarianism, in other words only to the common good, would be one-sided, so education that only emphasises the principle of autonomy and individual freedom while ignoring communitarian values, the common good, equality, brotherhood and the *coexistence of all people and coexistence with the environment and nature* is one-sided education.

Thus, the liberal libertarian understanding of human rights cannot represent that universality that is supposed to provide the holistic education (*Bildung*) of the human being. It falls short in value terms when it comes to defining the aims of education. Social rights and the spirit of common good represent other obligations and virtues that cannot be derived from human rights as implemented in the legal order. From a systemically ethical point of view, it would be disastrous for the school to neglect or abandon the development of these values and virtues that encompass areas such as, as Galston puts it: social, economic, political and general social virtues. We tend to put solidarity in first place among fundamental social virtues, while in the opinion of numerous authors [21, 22] these also include virtues such as empowerment, loyalty (but not servility) and courage. In the economic sphere, they include virtues such as understanding social systems, knowledge of the frameworks of public finance, enterprise, technological innovation, knowledge about the ways in which crises develop and function, activity within various trends of economic movements and labour ethics; political virtues, on the other hand, include, for example, sensitivity to the state of rights in society, knowledge of the constitutional system, social participation and so on.

5.5. The ethics of care, a key value or virtue

The ethics of care could be referred to as the third ethical force to develop in the twentieth century alongside the ethics of justice and communitarian ethics. Its peculiarity is that it does not try to be rationally universalistic but instead seeks the origin of the moral in the context of interpersonal relations, since only a relationship of care causes a motivational shift towards one's fellow human beings, which triggers moral judgement and reflection.

The ethics of care gives priority to "immediate proximity" [23] and is derived from the context of relations rather than from formal values. Perhaps H. Arendt puts it best: "In so far as morality is more than the sum total of *mores* [and also rights – Author's note], of customs and standards of behaviour solidified through tradition and valid on the ground of agreements, both of which change with time, it has, at least politically, no more to support itself than the good will to counter the enormous risks of action by readiness to forgive and to be forgiven, to make promises and to keep them" [9]. And, let us add, without referring to criteria that would be applied in the form of moral norms from outside.

As it is impossible to reconcile liberalism and communitarianism, the ethics of justice and the ethics of care are irreconcilable [24]. Despite their universality, human rights, in their formalised and instrumentalised conception, simply do not reach into the intimate sphere of private life, where conflictual social situations, adultery, lack of love or compassion, abuse of trust, harm, humiliation and so on are not usually described in terms of infringements of someone's human rights. This means that some other dimension appears in the regulation of private and, above all, intimate relationships, a dimension not encompassed by human rights. It is the sphere of values that cannot be characterised as just or unjust: friendship, love, respect, compassion and responsibility. The theorists of justice, or at least of its mainstream, have avoided treating and judging familial relationships with the criteria of justice: "Classical liberals, for example, assumed that the (male-headed) family is a biologically determined unit, and that justice only refers to the conventionally determined relations between families. Hence the natural equality they discuss is of fathers as representatives of families, and the social contract they discuss governs relations between families. Justice refers to the 'public' realm, where adult men deal with other adult men in accordance with mutually agreed upon conventions. Familial relationships, on the other hand, are 'private', governed by natural instinct or sympathy" [17].

Today, we have gone beyond the view that was voiced when the ethics of care first emerged, namely that it is an erroneous moral discourse in that it allows a separation of gender-divided moral perception and gender-divided morals. We have also gone beyond the opinion that the ethics of justice should apply to the public sphere and the ethics of care to the private sphere. In contrast to such a division, we can accept the opinion of Carol Gilligan and numerous feminists that the ethics of care, though characteristic of private relationships, also has a public meaning and should also be taken into account in public life [24].

Theorists of the ethics of care draw attention to the importance of values or virtues that have a more emotional and intellectual basis, in contrast to the predominantly rational virtues of libertarian and communitarian ethics. These include a sense of connection, one's network of relationships, proximity, nurturing relationships, sensitivity, compassion, empathy, loyalty, kindness, mutual assistance, moderation, solidarity, sympathy, care for others and, last but not least, the Golden Rule of ethics. Another of the fundamental virtues is *recognition of the other, the different, as a human being*. Recognition of the other is, in relation to every human being, something more fundamental, more elemental, which enables or establishes a relationship as a human relationship. This is the acceptance of the other into a relationship, even though in a given moment we may hate them or resist them, though they fill us with compassion and are generally different from us. Recognition is the basis for heterogenisation, the opposite of domination and homogenisation. This is recognition and acknowledgement of the other as a human being.

6. Education as communication or education (*Bildung*) as internalisation

Teachers play an important role in combining different ethical discourses in educational practice. The teacher must be capable of ensuring, *as a mediator in communication*, the interweaving

of different value levels (justice, solidarity, recognition of the other). The teacher must organise educational communication in such a way that all three ethical discourses are constantly inter-woven in it. Not so that the individual can imitate them but so that an awareness is gradually established of the fact that when making decisions in life it is necessary to reflect on different value orientations (justice, the common good and mutual relations), irrespective of which orien-tation is eventually preferred in the individual's decision in a concrete case. At the same time, the teacher must also establish the awareness that the decision taken by an individual is their own and that they must take responsibility for it. Whatever decision it is, they must stand behind it.

Previous consideration of values, particularly the values that are inscribed into human rights, has shown that at the level of implementation, without taking context into account, the con-tent of no value or right is self-evident, and none has an a priori theoretical foundation. The true meaning of a value is comprehensible only *in public discourse* and not in my inner, inter-nalised and subjective reflections that are limited unto themselves. Even for this reason, it is possible to doubt that education (*Bildung*) as internalisation could be effective. Internalisation suggests the passivity of the subject, an inner predeterminedness that, from the point of view of the goals of developing the autonomous subject, is anachronistic. We simply no longer expect the school to educate a biddable child. The fragility of human affairs, as H. Arendt puts it, requires an engaged approach, critical reflection and great sensitivity to social contexts [9].

The teacher must, then, be capable of guiding open moral communication. I have called this *differentiated moral communication*. It is important for the public school to communicate to every child, in the process of differentiated moral communication, an intellectual and emotional expe-rience of the difference of value discourses, in order to develop their capacity for moral judge-ment and teach them how to subordinate their affective moral inclination to rational moral judgement while taking into account the specific social context with all its emotional charges. The public school must endeavour to realise all the traditional aims of moral development, i.e. *moral judgement (evaluation), moral feeling and moral wishing (will)*. But the first level—the capacity for moral judgement and for seeing the consequences of one's own actions—is something that the school is obliged to achieve. This, if I may use an analogy, is the "minimum educational stan-dard" that the school can contribute in the formation of the moral self-image of every student.

How do we conceive the interweaving of different value levels in differentiated moral commu-nication? First of all, we emphasise that *differentiated moral communication* is not moral instruction and far less a moral lesson. Public reasoning, communicative rationality or public reasonable-ness can be a successful methodical tool within pedagogical communication. The expression "public reasoning" or communicative rationality is used by Habermas in the sense of an activ-ity that is oriented towards understanding (*verstädigungsorientiertes*) the functioning of society and has no instrumental connotation [25]. Kymlicka uses the phrase "public reasonableness" in a similar sense [17]. This activity takes the form of conversation about all the requirements, positions and views, and also all the actions, that relate to the rights of other human beings. For school purposes, the simplest way to present it is through the teacher's mediation of the con-versation with students about positions, views and their demands; needs or actions; disputes and conflicts. In public discourse, students should develop the ability to judge a concrete action, demand, belief and position from the point of view of different ethical discourses:

- They must present their demand, position, view, action and dispute regarding another in a manner that is comprehensible to others (a *reasonable definition* of their ethical position).

- They must establish the justice of their demand in such a way that any individual in the same position would be entitled to make the same demand (the principle of the *universality of rights*).

- They must show that the realisation of their demand does not limit the other (the liberal principle: my freedom ends where *another person's freedom begins*).

- They must establish that the quality of interpersonal relations will not be affected (the principle of the *ethics of care*).

- They must indicate the impact on the community and the common good (the principle of *sensus communis*).

I use the term "mediative" for this mode of communication because of its association with mediation. Technically speaking, this is a method of discourse that has long been known in didactics as the Socratic method or heuristic style. Yet there is a small but significant difference. Socrates knew the truth and believed that anyone could arrive at the same truth by coming to know themselves. The mediator, on the other hand, even if he or she knows the truth, must lead to the discussion in such a way as *not to influence the decisions* taken by the participants. For this reason, the term "mediative communication" is more appropriate than "Socratic discourse."

The *"minimum standard"* of moral formation compels the teacher to confront children with the values in their behaviour and accustoms them to moral communication. This is the obligation of the educational concept of public schooling, since otherwise it does not prepare people to face the difficulties of life and abandons them to cruel destiny. Whether this will result in the child harmonising moral judgement, emotions, will and behaviour with the common principles that he or she should follow is an entirely different question. There is simply no guarantee that differentiated moral communication will ensure the lasting and emotionally full moral activity of the individual. The school contributes its part if it develops the ability to publicly confront arguments and a *culture of fact-checking*, which is above all an important form of education against the manipulations to which the public is increasingly exposed. Today, various centres of power address the individual with fake news or encourage artificial needs of all kinds. Faced with all these influences, human choices are becoming increasingly limited, so the development of a culture of *fact-checking* is an increasingly important task in the education of young people.

The analogy of communication also applies when we think about younger children, including those of preschool age. When a child does something that is not allowed, the practice that has established itself in some nursery schools whereby the child is told "now go and sit on the couch and think about what you have done" is a mistaken one. Here, too, communication is important. When dealing with a small child, we are not going to begin with the method of public reasoning. This will be introduced gradually, in a manner appropriate to the child's age. We will begin with the communication of feelings, the stimulation of compassion and questions of what is right and what is wrong. The communication of feelings, however, should not be left halfway. It must be completed. Once again, we can take H. Arendt as a

model, in order to complete the conversation about how the child has done something wrong and how they have affected someone else, with forgiveness and a promise: "The possible redemption from the predicament of irreversibility – of being unable to undo what one has done though one did not, and could not, have known what one was doing – is the faculty of forgiving. The remedy for unpredictability, for the chaotic uncertainty of the future, is contained in the faculty to make and keep promises" [9].

The moral system must remain open in education in order to establish, consequently, awareness of responsibilities and duties. None of the moral levels in public reflection should be imposed on the student, and each should choose their own final decision. This is not a question of application of any of the theories of self-regulation. Rather, it is about forming consciousness, which is based on the simple fact that a moral decision in favour of a specific action *can only be the free choice of the individual*. Only in this way, it is possible to establish awareness of *responsibility* and from it develop awareness of *moral obligation*. Awareness of moral obligation cannot arise simply and directly through the transfer of the right of another, *nor can it be imparted without establishing awareness of responsibility for one's own actions in concrete situations*.

Differentiated moral communication demands from the teacher a willingness to confront the objections of his or her students. Teachers do not establish their authority through an instant pedagogical measure, but authority can be established through wisdom and understanding their students' feelings during communication. Even a teacher's admission that they are wrong does not in fact lessen their authority, it confers it. The old image of the authority of the teacher and the school has passed, never to return. The problem that remains is whether teachers are trained to act in unforeseen situations. Education is not in fact a causal process but a contingent one.

7. What pedagogical paradigms support ethical pluralism in the school and education as communication?

The question is a fundamental one. Of the four pedagogical paradigms that I have defined on the basis of our understanding of the medium of education [1], namely Herbartianism, humanistic (geistwissenschaftliche) pedagogy, socially critical pedagogy and reform pedagogy, only two are still relevant today. Herbartianism declined after the First World War, while humanistic pedagogy did so after the Second World War. The only contrast that remains today is between socially critical pedagogy and reform pedagogy (*Reformpädagogik*), where the latter means, from the point of view of educational goals, a cross between education (*Bildung*) as internalisation and education as communication. In the socially critical paradigm, education (*Bildung*) is formative and part of (deliberate) socialisation. Socialisation is understood as the "process of the transfer of the (symbolic) structure of society and the (necessarily and spontaneously) reciprocal process of internalisation of symbolic structures at the level of the individual" [26]. Social structure is created by real social conditions, which primarily forms the consciousness of the individual in accordance with universal value patterns. Education is necessary part of these relations and is always an expression of common or prevailing relations in society. The assumption

is that society is dominated by a "recognisable" symbolic structure, a kind of uniform teleology that enables identification. Consciously or not, it must be recognisable, since it is impossible to identify with the symbolically unrecognisable or it is possible to internalise it.

The medium of reform pedagogy is the child, the human being and the individual. In the last decades of the last century, the idea of the child as the medium of education developed within sociology, as part of systems theory [27], which gives it an entirely new meaning. According to Luhmann's systems theory, society is composed of various *functional systems* (economy, politics, culture, education, healthcare, social services, justice, etc.) which, as they have evolved, have become independent of each other, with the result that in modern societies each of them functions as an independent system, according to its own preferences, rules and criteria. That which is right in one system as a main legitimate aim (e.g. financial efficiency in the economy) cannot be transferred as a main value to another system (e.g. financial efficiency in healthcare) without the latter losing its functionality [28]. The functionality of systems thus makes it impossible for us to define the values of society as a whole in a uniform manner. For the purposes of building on our discussion up to this point, the most important thesis of systems theory is that all value systems are essentially particular, since they belong to functional social systems are not to society as a whole. This theory of Luhmann's is recognised as theoretically productive even by critics of his other radical ideas in the field of education. It is, in fact, doubtful that it would be possible to re-establish a situation in which the development of society were subordinated to some overarching ideology or uniform teleology [29]. This leads to an important conclusion for pedagogy, namely that it is not possible to understand education as "fixing" the individual to common social norms, and it cannot be planned as a means for global social changes [30].

The way in which Luhmann understands the relation between the social and psychological is also important for our purposes. The traditional view of socialisation derives from the theory that the social is transformed through internalisation into the psychological. The transformation of the social into the psychological is not possible in systems theory, because the social system (communication) and the psychological system (consciousness) are two different functional systems. There is no possibility of mediation between the two systems [27]. In the classic theory of socialisation, the transformation (transfer) of the social into the psychological takes place with the help of internalisation. Internalisation is not possible in systems theory. Traditional pedagogical reflection, which is limited to the French Enlightenment, German idealism and neo-humanism, is, in Luhmann's view, far below the level its own theoretical possibilities of analysing the problems of education and, above all, clarifying its belief in the causal relationship between the social and psychological or, to put it in pedagogical terms, between the intent of the educator and the effect in the structure of the consciousness of the learner. According to Luhmann, then, pedagogy has never been capable of developing serious doubt in the possibility of realising the educator's purpose. This is also reflected in the fact that it has used various constructs (pädagogischer Bezug—the pedagogical relationship, the pedagogical eros, internalisation) to explain educational effects that it has been unable to explain or justify scientifically.

Luhmann also holds the radical view that the task of influencing the formation of the system of consciousness via the system of communication is an unattainable and unfeasible task for education, since this would technically mean changing the structure of consciousness itself.

Consciousness is organised, in Luhmann's view, as an autopoietic system that constantly builds on some initial point. But it cannot build itself without its own operations such as the ability to learn, memory and the idea of the future. In order to explain external influences on the consciousness, Luhmann uses the concept of the structural coupling of communication and consciousness. Consciousness participates in communication, but in each individual sequence it is autopoietically organised [31]. Within the communication process, each individual responds to another in accordance with their own laws and with their own filters. We can thus only offer the child various alternatives for decision-making and, through communication, open up views of individual alternatives, without pushing any of them. Pedagogy should therefore replace the formula *Bildung* (the will to form) with the formula *ability to learn* [27]. We perceive the educator merely as a stimulator (or *Irritation*, to use Luhmann's term) that, by providing a choice of alternatives, nevertheless sets the frameworks for what can happen. It is therefore important that the alternatives should be plural. The final decision is the individual's decision whether to adapt to or resist the norms of reality.

Education is always the communication of all participants, not only of the educator and educatee. This simultaneous action and effect of all participants (including those not present, thanks to the action of the memory) is the reason why it is not possible to control educational influences in communication. Not because of the multitude of influences, but because the child and everyone else involved in communication act as *self-referential* systems. This thesis of radical constructivism is the basis for Luhmann's idea of education as self-socialisation. He derives it from the nature of human decision-making, rather than by adopting the principle of "freedom of choice." It is simply the fact that, in the final consequence, the individual decides on their own pattern of behaviour, despite the social system and the individual being imbued with each other. The child is the medium of education, but only as a being capable of learning, able to connect its thoughts, feelings, memories, plans and ability to think about the future. On this basis, it can form higher levels of connection and build consciousness. This, however, is an internal process of consciousness that is not evident and cannot be overseen from outside. Revealing this internal process is not a matter for pedagogy but for the cognitive sciences [27].

8. Conclusion

There are no ideal solutions when it comes to the educational process. As the question of how to ensure adequate social contexts that guarantee the successful development of the individual in the community always remains open in the classic theory of socialisation, it is not always possible in a context of self-socialisation to ensure reasonable and successful agreements and decisions through differentiated moral communication. If the thorn in the side of the classic theory of socialisation is that it is socially deterministic, the banana peel of the theory of self-socialisation is that it borders on subjectivism or even anarchy. Education as communication can only safeguard itself against anarchic education if it seriously implements the presumption of the responsibility of the individual for their own decisions and in this way builds awareness of the full responsibility of individuals for their decisions and choices, for better or for worse. How? In the case of a small child, through emotional communication that ends in

forgiveness and a promise; in the case of older children, through communication according to the principles of "public reasonableness," Responsibility is loyalty to oneself, which obliges us not to unburden ourselves of it or reset it at every moment. Responsibility is, in the end, responsibility for the other in a community, not in an atomised society.

We know from history that the education system has tended to cultivate obedience, stability and a number of other negative characteristics, if measured from the point of view of human autonomy and dignity. While it is impossible to deny the achievements that demonstrate how successful schools can be in overcoming many weaknesses in the life of society and the individual (issues such as xenophobia, discrimination against difference, dietary habits, vices, safe sex and so on), changing the views and even the political engagement of the environment is an entirely separate issue. We can agree with Amy Gutmann that it is necessary to "equip children with the intellectual skills that are essential for an evaluation of lifestyles that differ from the lifestyle of their parents" [32]. But to say this is merely to say "A." We also need to say "B"—in other words, what this means for educational practice. This is the professional challenge of this century. I believe that the first step in this direction is taken by understanding education as communication, which gives preference to the pedagogical paradigm that understands the child/individual as the medium of education, which does not, however, mean the "centre of education." Understanding education as communication further strengthens pedagogy's basic mission, that of a scientific discipline that occupies itself primarily with questions of wise educational behaviour.

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Precursors of Decolonial Pedagogical Thinking in Latin America and *Abya Yala*

Carlos Renato Carola

Additional information is available at the end of the chapter

Abstract

This chapter introduces the pedagogical thinking of an array of Latin-American and indigenous educators who dreamt of Latin America featuring more freedom and democracy. The works selected were from scholars who were born and had their intellectual upbringing, in the first half of the twentieth century. This is a "bibliographical essay" intended to highlight the predecessors of decolonial pedagogy, thinkers, and educators who formulated ideas and theories within a delinking philosophy. We place these thinkers in the context of building a Latin-American "awareness" and within the scope of active resistance from the people in *Abya Yala*.

Keywords: decolonial pedagogy, indigenous education, liberating education, biocentric education, Latin America, *Abya Yala*

1. Introduction

As implied by the title above, the key objective in this "bibliographic essay" is to make explicit the evidences of the crisis in the contemporary school system, and some of the response formulated by the Latin-American pedagogical thinking. We prioritized a generation of educators who achieved their degrees in the first half of the twentieth century and who had shared with society their intellectual production by 1990, a time preceded by a decade of social conflict and democratic liberalization.[1]

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[1] Falklands/Malvinas War (Argentina vs. England, 1982), Civil War in El Salvador (1980-1992), Tupac Amaru Revolutionary Movement in Peru (1980-1990), and the end of military dictatorships in Bolivia (1982), Argentina (1983), Uruguay (1984), Brazil (1985), Haiti (1986), Chile (1988), Paraguay (1989).

We frame our study in the decolonial pedagogy field. The wording coloniality/decoloniality has been rendered theoretically systematic by a school of Latin-American thinkers, who have been formulating new knowledge bases for an epistemological theory of philosophy and liberation. From this school's stance, "modernity" was not a "pioneer" invention of Western Europe, and it is not presumed to be an evolutionary pathway for mankind. Such "modernity," currently expressed in its globalized capitalistic form, began to be built since 1492, with the invasion and colonization of the people in *Abya Yala*, historically becoming a Eurocentric modernity, with a universalistic discourse. To the world's eyes, the Eurocentric philosophy emphasizes the Renaissance look of modernity, the grinning face of progress in economy, arts, scientific knowledge, and individual freedom. However, modernity has also a shady and vicious face that has been traditionally concealed by the Eurocentric historical philosophy. It is the imperialistic, colonialist, and racist face. Decolonial pedagogy is committed to unravel the power and the secrets of modernity/colonialism, being the latter understood as the power contrivances rooted in the culture and mentality of colonized people.

Why is there Latin America and *Abya Yala*? "Latin America" is an identity concept for Latin-American (or Hispanic-American) people that came up in the context of imperialistic disputes between France and England, together with the internal disputes triggered by the struggle for independence in Spanish America (nineteenth century), and the political conflicts with the United States. Though the "Latin America" concept developed—throughout the twentieth century—a "forward" dimension toward the cause of oppressed people, it fails to consider the claims or rights to exist and live of the indigenous and Afro-American people, in this case, mostly the lifestyle of the quilombola communities. This is why it is necessary to see and think of the world also from the stance of the history and culture of the autochthonous people in the Americas. Therefore, *Abya Yala* is the term that has been used by the indigenous movement in the Americas to refer to the American continent from the native people's stance. Within the scope of critical thought, *Abya Yala* is an ethical attitude acknowledging the various original people's right to live, to exist, and keep their history. It is an instrumentally ethical attitude to build an intercultural dialogical relationship in the liberating outlook by Paulo Freire [1] or a face-to-face relationship according to Enrique Dussel's philosophy [2]. *Abya Yala* is an epistemological beacon of light that was not born in academia, "but from the guts of this land, the womb of the battered communities, by pooling together the Kuna people with another, just as ancient and rugged, the Aymaras [3]."

We have divided this chapter in four parts. In the first one, we set forth the precursors of decolonial thinking, which was expressed as an epistemological liberation philosophy. Next, we introduce the indigenous education in its way of living and resisting internal and external colonialism. In the third part, we introduce the pedagogical thought of two educators in the liberating popular education, and we close this chapter explaining the theories of two Chilean educators, who set the cornerstone for the pedagogical project for biocentric education.

2. Precursors of the liberating philosophy

Colonization in both America and Africa shares an ontological common feature: the modernity discourse disguised as Ulysses' siren song. In Latin America and the Caribbean, few intellectuals resisted the charm of this West European modernity, and fewer were unharmed by it. Nevertheless, we find a unique variety of poets and philosophers willing to unravel the mysteries of colonization and colonialism, formulating ideas and insights to create "enlightened subjects" for a "different" America. Among others worthy of being studied and known, we chose the Brazilian anthropologist-historian Manoel Bomfim (1868–1932), the Mexican philosopher Leopoldo Zea (1925–1961), the Caribbean poet Aimé Césaire (1913–2008), the Caribbean psychiatrist-philosopher Frantz Fanon (1925–1961), the Peruvian sociologist Animal Quijano, and the Argentinean philosopher Enrique Dussel.

In Brazil, Manoel Bomfim [4] struggled against the hegemonic power of scientismic and racist thought that prevailed in the late nineteenth and early twentieth centuries. He was one of the Latin-American thinkers who did not succumb to the simplistic and racist arguments from Eurocentric modernity. He earnestly rebutted the theories attempting to justify the cultural and economical lag in Latin America with the conceptual instruments of scientific racism. Darcy Ribeiro became familiar with Bomfim's work while in exile (Brazilian dictatorship of 1964), in Montevideo, the time when he wrote his "Studies on the Anthropology of Civilization." It was during his exile that he broke with the "Brazilian imposed provincialism" and became aware that "we are part of a whole: Latin America." It was in exile that Darcy Ribeiro realized that "the overwhelming majority of Latin-American writers striving to understand our historical lag" was made up of "parrots repeating other people's wisdom or mountebanks." Some of them covered pages parroting what metropolitan thinkers had said about us with the intent of justifying European colonialism—as he pointed out—and others opposed it, referring to "innocents, with terrestrial forces, bronze races, and even Latin cosseting to lecture, feeling insulted, about superiority assumptions that our history fails to endorse." However, amidst the bibliographical flock of parrots, Darcy Ribeiro found a bright, albeit fickle, and spark of lucidity. He incidentally found "this extraordinary book titled *Latin America—Evils of Origin*, by Manoel Bomfim." From reading it, he discovered the singularity of an "original, fully mature Latin-American thinker in 1905," when the first edition of his *Latin America* [5] was published.

While hegemonic theories justified the lag in Latin America as an outcome of the presumed genetic legacy from the indigenous people and African negroes, the tropical climate and the Catholic religion, Bomfim identified the "European colonizer's parasitism" as "evils of origin." The European development model, Bomfim accuses, was built on the oppression and enslavement of the indigenous and African people; the colonizers' parasitism is the foremost cause of the lagging economy and social inequity.

In Mexico, philosopher Leopoldo Zea (1925–1961) proposed a philosophical itinerary to build an authentic American philosophy, free from the psychological contrivances from the

colonized frame of mind, empowered in terms of cultural reliance, and committed to solve the major inequity and injustice issues in America. In *America as Consciousness*, Leopoldo Zea (1953/1972) takes for an issue the cultural and philosophical dependency of American thinkers; America's "feeling inferior" to Europe issue. Zea develops his philosophical-historical thought projecting an evolutionary empowerment scenario, still following the epistemological coordinates from West European knowledge. He presents a critical diagnosis of the situation of thinking and reality that prevailed in Latin America during the first half of the twentieth century; he discusses the ranking America held within the "European awareness." Zea challenges the *History of Philosophy* by Hegel, a Eurocentric philosopher who failed to acknowledge the history of the original people, but took America merely for its future potential.

The Mexican philosopher makes explicit his interpretation of the political independence and the controversies between the "Two Americas," viz. Anglo-Saxon America and Latin America. Upon considering America's intellectual emancipation, he confers a strategic role upon *education as a cultural empowerment instrument*. Education steps up to a fundamental role, particularly after the events suggesting the failure to conquer political independence, when the social groups in the new independent nations faced each other with unrestrained violence: wars, conspiracies, and coups. Overall, Creole elites defeated metropolitan despotism and developed multiple American despotisms; they replaced the king with various regional dictators (warlords). First, people fought for the king; then they fought for the clergy, the militias, or the warlords: a dynastic and colonialist dictatorship by any kind of dictators: "conservative, constitutional, liberal, or personalistic." A dictatorship was implemented even under the guise of establishing freedom [6]. Zea confers an empowering role upon education from the awareness that in a colonized society, people are educated for servitude. In his dialog with the thoughts of Simón Bolívar, particularly regarding the *Jamaica Letter*, Zea observes that in the colonial regime from Spain and Portugal, the population was taught to serve the best interests of the metropoles; "such education stemmed from the presumed ethnic and cultural inferiority of the people colonized." Zea further points out that the notion of inferiority was extensive to all those born in America, "regardless of their ethnical and cultural origin." Therefore "anyone born in this territory, including indigenous, Creole, and mixed, was deemed inferior to their conquerors and colonizers." The colonized population was deprived of its human condition, being educated and disciplined to obey, to serve, and become a thing, an object, or a nonhuman animal. This is why Simón Bolívar insisted in pointing out the effects of colonial domination for human servitude, "educate to obey, to never be able to command" and much less to lead a nation, a new state [7].

In Colombia, Orlando Fals Borda (1925–2008) produced several works toward a "liberating society," committed to free the oppressed population, mostly peasants and Indians. Fals Borda's very intellectual upbringing is a path of intellectual liberation. He took his undergraduate and graduate studies in the United States (1947, 1953, and 1957), topping them with his doctoral thesis, *The Man and the Land in Boyacá,* at the *University of Florida* in 1957. He held governmental jobs and worked in study, research, and educational institutions, both stateside and internationally. In 1961, he published, in a partnership with Monseñor Guzmán Campos and Eduardo Umaña, *La transformación de América Latina y sus implicaciones sociales y económicas [The Transformation of Latin America and its Social and Economic Implications]*, and in 1962 *La violencia en Colombia [Violence in Colombia]*, which caused intense debate and some furious

response from the Colombian elite, including death threats [8]. This work drew attention from public opinion in Colombia, since it made explicit the structural nature of violence and suggested actions for social pacification, including ideas for an educational policy.

In 1970, Fals Borda launched the book where he set forth the Eurocentric issue in a sociological manner. In his *Own Science and Intellectual Colonialism* [9], the Colombian sociologist expresses the conceptual coordinates of the "sociology of liberation", proposing the independence and valuation of Latin-American thinking. Fals Borda takes as issues the epistemological domains of Eurocentric, cultural, and economic dependency, highlighting the need to overcome our "inferiority complex"; he challenges the theoretical transposition of Euro-American scientific categories into the Latin-American reality. He proposes a liberating and creative intellectual independence, however devoid of ethnocentric xenophobia and scholarly hubris. At the same time, he emphasized the need to transcend the Eurocentric boundaries. Fals Borda also pointed out the importance of maintaining an intercultural dialog with the different schools of thought, including the European one. His proposed sociology would be committed to fairness to those oppressed and a *Participatory Action-Research* (PAR) for social transformation. Intellectual recalcitrance and subversion were liberating attitudes in Fals Borda's *thinking & feeling* sociology [10].

From the Caribbean islands and in the resistance to French imperialism, two Martinica-born Caribbeans left a legacy for the utopia of a world free from colonization and colonialism. Aimé Césaire (1913–2008) was a poet, essayist, playwright, and philosopher. In his *Discourse on Negritude [Blackness]* (1950) and *Discourse on Colonialism* (1955), Aimé Césaire draws insights holding potential to transcend the epistemological boundaries of Eurocentrism. Using the concept of "blackness", developed in the oppressive cultural environment created by the French colonial system, Aimé attacks racist thinking, rebuffs the cultural assimilation policy, and proposes epistemological tools for the self-esteem in "being black" and valuing the African culture. However, his liberating poetry is not limited to the unfair situation of the black population. Aimé places himself in the cause of the "oppressed races" upon expressing his humanistic conviction, "*Je suis de la race de ceux qu'on oprime". [I belong to the oppressed race.].* Upon analyzing the obscure dimensions of Eurocentric colonialism, Aimé makes a connection with the emergence of Nazism, suggesting that Hitler was not an unpredictable accident but the outcome and "punishment" to a colonialist Europe.

Where was Aimé leading to? His point is that a State promoting and practicing colonialism is the same that creates the conditions for the development of a Hitler. When European imperialism deemed it permissible to invade foreign lands and colonize non-European peoples, "it was Hitlher who spoke", says Aimé. In other words: "nobody colonizes innocently", and neither colonizes unpunished, since "a civilization that condones colonization (…) is already a sick civilization, morally blemished, which unavoidably moves from one consequence to another, from one denial to the next, invoking its Hitler, i.e., its punishment [11]".

Frantz Fanon (1925–1961) follows the same reasoning thread as Aimé Césaire. In *The Wretched of the Earth*, Fanon unveils the physical and psychological dimensions of colonialist violence. Using insights and psychoanalytical study of patients fraught with mental derangement conditions resulting from colonial violence, Fanon [12] demonstrates that, in the colonialist society, violence dehumanizes both colonizers and their subjects. Colonial society is divided into

explicitly racial and cultural fields, featuring the geography of Master and Slave, as termed by Aristotle. Post-colonial society melts the visible and legal boundaries of oppression and slavery; however, the colonialist culture is deeply rooted in the deepest "being" of colonized men, i.e., the oppressor's shadow remains culturally and psychologically hosted within the oppressed ones, as Paulo Freire would put it.

In his conclusive—and to some extent desperate—narrative, Fanon leaves some warning to those "wretched of the earth" who conquer their independence, advising them to stay clear from the mistake of "mimicking" Europe, implicitly emphasizing the vigor of the Eurocentric colonialism domain in the epistemological and cultural scope: "Mankind expects from us something better than this generally demeaning mockery"; and "if we hope to transform Africa into a new Europe, America into a new Europe, than we'd better entrust the Europeans with the fate of our country," as "they'll know better how to do it than the best amongst us" (p.275) [12]. Hence, for Fanon, the conquest of political independence, ousting colonizers from the territory, is just the first stage of the decolonization process and maybe this is the most visible phase of the "liberating war," since the enemy to be defeated is in plain sight beyond the trenches. The toughest and most complex challenge is to fight the shadow of the oppressor that is ingrained in the soul of the colonized population and in the minds of the "colonized intellectuals."

One of the most efficient imperative rationales of European modernity is achieved through colonialism in knowledge, "driven" by Eurocentrism. Eurocentrism is both a vision of the world and a new form of power; it is an epistemological knowledge matrix that justifies and validates this new world standard for the power of modernity/colonialism. Eurocentrism, states Anibal Quijano, is the perspective of knowledge whose systematic compilation began in Western Europe during the first half of the seventeenth century, though its origins date from earlier times. Its ideology was built together with the "specific bourgeoise secularization of European thinking, as well as the world's experience and needs of the capitalist, modern/colonial, Eurocentric power, established from America" [13].

The philosophy of liberation proposed by Enrique Dussel is that one which stems from the ontological criticism to the normative moral of the prevailing social system, which also implies "unraveling" and decolonizing the Eurocentric epistemological knowledge geography, mostly the epistemological decolonization of human and social sciences. The "liberating" term evokes historical experiences and mythical reports referring to the liberating processes in oppressed people that deposed the domineering moral order and transcended their oppression and enslavement by means of a new and more equitable social order. In the past, there was the enslaving moral of ancient societies, the European feudal period servitude, the castes system in Eastern and Asiatic societies, and the modern and contemporary colonial order in America, Africa, and Asia; in the present, there was the neoliberal-grounded capitalist moral.

The liberating philosophy, therefore, is a philosophy born in and developed from the life conditions of the oppressed/excluded ones, a "pedagogy of the oppressed" as meant by Aimé Césaire, Frantz Fanon, and Paulo Freire, aspiring to justice, equity, and life quality. More than a Western-style philosophy, Dussel expresses some radical criticism to the positivistic and illuministic vision of history, as reported from the Eurocentric stance. It demystifies the key arguments of the West European history of philosophy, evidencing a philosophy of

history purporting to be universal; and it further radicalizes its philosophical analysis upon uncovering the fetish of modernity, an ideology that creates a natural a locus of universal centrality for Europe, validating and hiding its imperialistic background as a presumed civilizing advance for the entire mankind [14].

3. Education in the indigenous peoples living and resisting

What was the life style and, particularly, education in the major civilizations in *Abya Yala* like? What was education like for the people in the forests? The entire epistemological reality of the original people was "covered" by the West European epistemological modernity. Our first pedagogical mission is to dig and "uncover" this immense world that was buried. When Spanish conquerors invaded the *Anáhuac* territory (currently Mexico and Guatemala) in 1519, for instance, the Aztec civilization was organized into 38 provinces. On top of a complex urban structure that impacted the Spaniards' first impressions, there was a public education system and an erudite culture that valued the art of knowledge to be preserved and shared by means of books. The books, as Jacques Soustelle points out, "were regarded as very important by ancient Mexicans"; in the temples and more affluent homes, there were rich libraries, and the profession of painter-scribe (*tlacuiloani*) was particularly valued. Spaniards still had a chance to witness the existence of two public education systems: "the neighborhood schools, where male instructors taught boys and female instructors taught girls, to get them prepared for real life," and the monastery-school (*calmecac*), "where teaching was performed by priests" [15].

The Inca civilization, differently from the Aztec, did not need written language to develop its complex urban architecture or its knowledge in astronomy and mathematics; they developed a recording and accounting method using a technique involving knots on ropes. When Spaniards invaded the *Tawantinsuyu* territory, they not only destroyed the "admirable" city of Cusco, *Tumipampa, Cajamarca, Huánuco, Jauja, Huaytará*, and *Vilcashuaman*, but also destroyed and covered the information and knowledge artifacts from this complex cultural diversity of the Inca civilization. In the State territory, for instance, there were two educational modes, one institutional, and another informal, "natural education" [16].

The *Tawantinsuyu* empire developed between the 12th and 15th Centuries, gathering within its domain millennial traditions from other people. The Empire's social basis was strongly supported on an *Ayllu* network, a family and community organization created by kinship within a territory collectively shared by a number of families. At its climax, the Inca empire had its domains spanning from the present territory of Colombia to Argentina, covering about 1.5 million square miles, with an estimated population of 30 million inhabitants [17].

Education-wise, the Empire organized a system of educational agents in different tiers and roles, a system that privileged the male members and the higher classes, however including all communities that were part of the Empire. Teaching philosophy, practical moral, and literature were assigned to the *Amautas*, wise men who represented the higher knowledge of the Inca culture. Knowledge on poetry, nature, and good life was conveyed by the *Harávecs*, recognized for their knowledge and memorization skills. Priests also had their educational role, and one

of the most acclaimed was Willac Umu, a specialist in teaching philosophy and religion. The *Kupucamáyoc* were specialists in the *Kipus* arts, the method used for recording and accounting with ropes, enabling knowledge in arithmetic, mathematics, and record-keeping in the Empire. The *Chasquis* were some kind of messengers of knowledge. Their role was in communication, transmitting information, usually performed by physically fit youngsters who had a good memory. Other educational agents, no less important than the previous ones, were the *Mitmacs*, some kind of cultural envoys intended to spread the Inca culture by replacing, in rebellious territories, those who opposed the sovereign's power, thereby performing this pacific occupation through the dissemination of the Empire's language and lifestyle in the occupied territories. The Inca government recruited *Mitmacs* from among the working population, selecting experts in varied occupations, such as shepherds, farmers, painters, masons, and goldsmiths [16].

In the early seventeenth century, the Peruvian Indian Felipe de Guama Poma de Yala (1534–1615) wrote his *First New Chronicle and Good Government*, a 1200-page document, denouncing the social injustice of the Spanish colonial regime and asserting the peaceful coexistence of the two worlds. He also implicitly advocated for the return of an educational system focused on the *Tawantinsuyu* cultures. In his chronicle, Guama Poma states that the Inca people had nothing to learn from the European colonizers, since these had nothing good to teach to the conquered people other than the art of violence and prejudice. Guama Poma's claims were not awarded [18]. In both the Spanish and Portuguese colonial systems, there was an extended process of culture assimilation imposed by military, judicial, religious, and educational action. In colonial societies, educating the indigenous ethnic groups was paramount, and priests and missionaries were the ones who performed the most durable colonizing educational work, with the purpose of "civilizing" and "acculturating" Indians.

In the nineteenth century, the colonizing elites—who fought for independence and spread the patriotic discourse and the colors of the new national identities—viewed both Indians and negroes as an obstacle to the intended advancement of the Eurocentric modernization. In this (in)dependent modernization context, three policies were found, relative to the indigenous people: the extermination policy for those Indians who resisted invasion of their territory; the confinement policy in reserves and schools for the ethnic groups who preserved their indigenous identity, aiming at social control and progressive acculturation to the national State; and the school education for the rural population, in regional realities (mostly Andean and Central America), where the prevailingly indigenous and mixed population had been born and survived within the colonial society's borders. Within the national States, the education the new republican nations offered to the indigenous people, during the first 150 years after political independence, was focused on assimilation and acculturation. That school education was conceived and organized by the State and the Catholic Church.

The schooling offered—and in many cases imposed—by local governments was an extension to the colonization effort, intolerant to the lifestyle of indigenous cultures. In the United States and Canada, after having "conquered the West," many indigenous children were plucked from their families and sent to boarding schools. Yataco states that "in these schools, they were forbidden to speak their ancestors' languages, children were separated from their parents, their grandparents, and their cultures; they were psychologically, physically, and oftentimes

sexually abused"; and these boarding schools were "correctional facilities where boys and girls were tortured with extreme fierceness." According to the civilizing process adopted by these two major modern North American states, Indians should be civilized and humanized, beginning with the younger children. Based on the mandatory education laws, state employees pulled boys and girls from their parents' arms, to send them to boarding schools, "where the goal was to suppress Indians, however without slaughtering them physically [19]."

In Panama, this enforced cultural disrespect caused the Kuna[2] people to rebel in 1925. In this upheaval context, we see a scenario of interests and conflicts elicited by three major projects: the independence of Colombia, led by the colonized elites from Panama, in 1903, a situation that split the Kuna people territory and caused widespread discontent, since part of the Kuna families thereon would belong to Panama, and the other part to Colombia; the imperialistic US government project, which benefitted from the independence, and took over the construction of the Panama Channel (1904–1914); and the Kuna people autonomy project, which culminated in the 1925 revolution. Atencio López Martinez explains that, after independence, new issues came up for the Kuna people, among them the invasion and colonization policy by nonindigenous foreigners, fishing and hunting poachers, and explorers seeking minerals, coconuts, rubber, wood, and other natural resources. Martinez states that "Panama government took no action to placate those grievances, neither at that time, nor in the ensuing years, so the conflict in *Kuna Yala* escalated." Furthermore, the situation got worse after Law #59 was passed, in 1908. It determined the "civilization of the Indians," i.e., a legal instrument to use all "peaceful means" to acculturate into civilized life all "savage tribes" living in the territory of Panama. In order to render viable such "evangelizing" project, government sent missionaries and teachers as "civilizing agents," making available "abundant land plots for non-indigenous settlers" [20].

Faced with this invasion and colonization scenario, the leaders of the Kuna and other indigenous people assembled a general meeting on February 12, 1925, where they passed the Declaration of Independence of the Republic of Tule. The key issues in that Declaration to be negotiated with the Panama government were the administrative and political independence of the Kuna people in its territory; land boundaries defined for the San Blas jurisdiction (Kuma Yala); jurisdiction of the plantations in Armila and Mandinga bay, as well as the exploit of iron and manganese; and also the implementation of educational institutions that respected the Kuna people cultural traditions [20].

In Southern Colombia, other indigenous people also rebelled against the national State colonization and modernization project. This resistance can be found and understood from the path and work of Manuel Quintín Lame, a Colombian Indian from the landless Paeces people, who had to work in the farms of major landowners, like his father. He was born in 1883, in the Polindara reserve, currently located in the Totoró county, Cauca district, in Southern Colombia. According to his testimony, he dictated the book *Los pensamientos del indio que se educó dentro de las selvas colombianas (The Thoughts of the Indian Educated in the Colombian Forests)* to the Indian Florentino Moreno, who wrote very well and who finished it by December 1939. Nevertheless, its first edition only came out in 1971. A second edition was published in 1987,

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[2]Different documents and works also use Cuna or Dule to refer to the Kuna people.

by The National Indigenous Organization of Colombia (ONIC), and a third one in 2004, by the University of Cauca and the Faculty of Humanities of Universidad del Valle [21].

What do we see in the "thoughts of the Indian educated in the Colombian forests"? Quintín Lame characterizes nature as a mother and master of divine origin; he explicits a conception of otherness, differences between Indians and white men. He learned the Spanish language as a strategy to accuse the oppression of his people. As Martha Elena Carvajal points out, *Quintín Lame, like the vast majority of American Indians, in tune with his legacy cosmic vision, feels, sees, and conceives nature, in itself and in the land, as his mother; and just like the actual Peace Indians, Nature is his "nasa kiwe," his motherland* [21]. It explicits a concept of "natural education," emphasizing the moral value of an educational philosophy ingrained in nature.

Quintín Lame says he did not receive the schooling intended for non-Indians; and he knew that this education represented prestige and access to the modern society knowledge. However, he observes that his "natural education" was and is at least as important as the formal education provided to non-Indians. Grounded on the indigenous people's tradition, Quintín Lame conceives nature as the great master of life. He says that *the little Indian hasn't seen or enjoyed these knowledge or educational principles*. However, he remarks that *Nature has educated me under its shadow, its warmth and its freeze; it has shown me idyllic poetry under those shadows; it has also shown me its three kingdoms—mineral, animal, vegetable; it has taught me to think; it showed me where my office was, in the desert loneliness had given me*. What is the cradle of knowledge, asks Quintín Lame? Nature. And what is nature? Nature, he says, *is the Book of God and the Science of God is infinite, while the Science of men is limited* [21].

Hence either North or South of the Americas, the indigenous people resist as much as they can to the modernity expansionistic project; and modernity/colonialism always comes from either the right or the left. In the scope of—private or public—schooling, school has been a national and global instrument for "shaping" modern subjects, implementing curricular disciplining practices that suppress the historical and cultural diversity of the people in *Abya Yala*.

4. The liberating popular education

What do we mean by "liberating popular education"? We conceived the idea of "popular liberating education" as a pedagogical concept articulated with a social and political reality transformation project, going beyond the two social paradigms of West European modernity—capitalism and socialism—though it might include some of the equity and justice principles from the latter. Popular education makes explicit a pedagogical concept committed to overcoming the oppression and inequity that prevail in popular classes. It is a pedagogical practice with the intent of building a pedagogical project of liberating a people (or a community) from its cultural or environmental reality, in a dialogically shared literacy-awareness educational process; a pedagogical practice promoting some liberating intellectual empowerment, enabling the subjects in the educational process to have a critical reading of the world, without resorting to ideological indoctrination, so that learners will be intellectually fit to

make their political choices for a world endowed with more fairness, solidarity, and welcoming, for a respectful intercultural and interethnic coexistence.

In Bolivia, our chosen educator was Elizardo Pérez (1892–1980), one of the pioneers of liberating pedagogy, in our opinion. Pérez was born in Ayata, Muñecas province, La Paz district. He died at age 88 in Buenos Aires (Argentina). In 1931, he led a "cultural revolution" through one of the most unique pedagogical experiences in Latin America. Under authorization from Bailón Mercado, Minister of Education, and in partnership with the Aimara native Avelino Siñani (1881–1941), he founded the *Ayllu* school in Warizata, an indigenous school whose pedagogical project was inspired in the ancient legacy from the Inca civilization. Pérez conceived the school project convinced that indigenous education should take place in the community and cultural environment where people lived; that the school should become a preservation center for indigenous traditions, and at the same time, it should create solid conditions for the socioeconomic development of the community.[3]

In his book *Warisata: The ayllu school* (1962), Elizardo Pérez refers to the book *Creation of the National Pedagogy* (1910), by Franz Tamayo (1879–1956), a Bolivian thinker who rebuked importing educational ideas and projects from Europe. Peréz believed that the spirit of the indigenous man had survived, and that the mission of the indigenous school was to bring it to life, "modernizing without giving away traditions, civilize without disrupting its ancient culture and institutions" [22]. His book is an invaluable historic document, as Elizardo Pérez describes one of the most liberating pedagogical experiences in Latin America. He conceived a pedagogical project aligned with the people in *Abya Yala*. His project became viable under the dialogical partnership with the Aimará indigenous master Avelino Siñani *who, with his own knowledge and understanding, and without any official backing, did a pioneer educational job with the children in that region*, as observed by Carlos Soria Galvarro (1981/2014). Elizardo Pérez, points out Soria Galvarro, *acknowledges Avelino Siñani as the true inspiration for Warisata, describing him as an apostle-like figure, an Andean "amauta"* [23].

Warisata was not a casual choice for the *ayllu* school. Elizardo Pérez selected an indigenous territory, far away from both urban centers and the countryside areas where chiefdom by landowners prevailed. The school was collectively and cooperatively built by that very indigenous population, with supplemental resources from the State, Bolivian society friends' associations, Elizardo Pérez's own funds, and building materials donated by the governments of Peru, Venezuela, and Mexico. The architectural design of the *ayllu* school drew admiration and conservative fear, as it was an investment for the indigenous population. It was a two-story building, having an 8000 sq.ft. yard, surrounded by trees and a garden. The design also included a boarding school, with five dormitories hosting 150 beds. Inside, there were five classrooms, five other rooms for offices and storage, plus six workshops for practical classes and production in carpentry, textiles, tapestry, and blacksmithery, as well as canteen, kitchen, and bathroom [24].

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[3]The Bolivian indigenous people, like other countries having an expressive indigenous population, has had an endless struggling history. In 1780 there was the Tupac Amaru II rebellion (Tupac Katari), led by the native José Gabriel Condorcanqui against the Spanish colonial system, and in 2000 the Water War in Cochabamba, the first anti-neoliberal revolution in the twenty-first Century.

Since its foundation, the utopic and liberating dimension of the *ayllu* school caused hatred and fearful responses among the Bolivian society rural oligarchs. During all its 9 years of enlivening operation, the *ayllu* school was under permanent threat. Government resources were withdrawn; farmers conspired and connived to hamper the school's operation, cutting the water supply and rumoring slander that stimulated fear and hatred. Elizardo Pérez was charged of being a communist at the service of the Soviet socialist regime. In 1940–1941, the *ayllu* school in Warizata was dismembered from its original project and ostracized by Bolivian government. In spite of protests from Bolivian society, school management was handed over to men with corrupted moral character and, most of all, people had no respect for the indigenous. Construction work was halted, and parts were demolished; the roof shingles factory was dismantled and taken to La Paz; crop fields, orchards, and gardens were abandoned; livestock (lambs, pigs, poultry) were killed; tool and material storerooms were emptied; electricity supply was disabled, and the furniture vanished; the *Amauta* Parliament was suppressed, and its members were persecuted; the potable water system was destroyed; the new managers occupied the dormitories as if they were owners; natives were thrown out, and a hunting season began, chasing students and parents who were committed to the *ayllu* school's social project [24].

In the popular education field, Brazilian educator Paulo Freire is one of the most acclaimed figures worldwide. His thoughts and works are studied and discussed in many universities, academic conferences, and publications. His literacy-awareness method, conceived in the 1960s, is still used in several countries. All continents welcomed his pedagogical thinking, and many countries set up study and research centers as the Paulo Freire Institute.

Paulo Freire (1921–1997) was born in the city of Recife, capital of the state of Pernambuco, in the Northeastern region of Brazil, where the most exploited Brazilian population lives. His best-known book—*Pedagogy of the Oppressed* (1968)—was written in Chile, where he sought refuge from the dictatorship that took over Brazil in 1964. He formulated the *Pedagogy of the Oppressed* theory in the context of the Latin-American military dictatorships and the "Cold War" climate, a time of polarization with major geopolitical impacts, where the invention of Eurocentric-nature terms took place: capitalism and socialism; First World, Second World, and Third World; Developed Countries and Underdeveloped Countries. Paradoxically, the very dictatorship that ousted him from his country also created the conditions for Paulo Freire to get to know the world. It was during his exile that he was introduced to the reality of African and European countries and to the United States.

According to Paulo Freire, as history unfolds, human groups are subject to humanization and dehumanization. Man's ontological condition is humanization, however within an oppressing society that gets its self-affirmation from injustice, exploitation, violence, and domination, such condition is denied. This creates the need to develop a *Pedagogy of the Oppressed,* making it possible "to recover the stolen humanization" [1].

In order to understand the liberating role of the *Pedagogy of the Oppressed*, Paulo Freire highlights two key points: the oppressors' violence also renders them dehumanized, hence "the major historical and humanistic task of the oppressed ones is to liberate both themselves and the oppressors"; and, in order to carry out this liberating role, the oppressed ones must become aware that they "host the oppressor inside themselves," since "only as they perceive

themselves as hosting the oppressor, they'll be able to contribute, by sharing their liberating pedagogy" [1].

The oppressed ones' liberation process does not take place upon discovering their condition. In order to refrain from a naive and simplistic vision, Paulo Freire warns that "the structure of your thoughts is conditioned by the contradiction experienced in the actual, concrete, situation in which they come up." For this reason, "their ideal is, indeed, being men; however for them, being men within the contradiction they have always been in, and whose way to overcome is not clear, is achieved by being oppressors" [1].

The challenge of the Liberating Pedagogy is more complex than it seems. Oppressive mechanisms pervade the oppressed ones' culture and mentality, while the oppressor clings to material assets and to the politico-economical power that enables him to preserve his family's comfort and perks. In the oppressive cultural environment, the oppressed ones who "host" the oppressor's way of being fear freedom, because the liberating process requires them to fill the void—left after having expelled the oppressor from within—with some new content, i.e., "their autonomy." Therefore, for Paulo Freire, freedom behooves responsibility and autonomy; "it requires a relentless search that can only exist in the responsible act of who is performing it" [1].

Paulo Freire also expressed his criticism on conservative education, describing it as "banking education." In the "banking education" practice, the teacher is the subject of knowledge, and the student is the passive object, awaiting that knowledge to be deposited on his mind, empty of history and experience. In the banking school's architecture, students are disciplined to receive, memorize, and repeat content. In the "banking education" practice, there is no chance for intercultural learning, no dialog, and only communication from whoever is labeled as the owner of knowledge. According to Paulo Freire (p 58), "in this distorted view of education, there is no creativity, no transformation, no knowledge"; there is only significantly liberating learning "in invention, reinvention, relentless search, permanent impatience, which men do in the world, with the world, and with each other" [25].

5. Precursors of biocentric education

As an outcome of the ontological and biological condition of mankind, the human being's vision of the world is "naturally" anthropocentric. However not always, and not in every culture, has man placed himself as a "superior species," relative to nonhuman animals. This is why we consider it important to explicitly trace back the path of such anthropocentrism, and the place this way of thinking occupies in the contemporary process of devastating our planet's environment; at the same time highlighting the new ethical sensitivities, with the intent of overcoming the colonialist dimension of anthropocentric pedagogy.

Both anthropocentrism and speciesism are ideologies that justify and legitimate the human species' violence and domination relative to all other nonhuman life forms on our planet. Modern society's "evolution" was paved by speciesism and anthropocentrism. In the ancient Greco-Roman tradition, some philosophers expressed their vision of the world without bestowing a superior position on humans. These ancient philosophers—Pythagoras, Seneca,

and Porphyry among others—conceived men within a "web of life," shared by all live beings. Had the Western humanity followed Pythagoras' ethical conception, the tyranny that has been established ever since, to the present day, regarding other live beings would not have found its place morally in the cultural upbringing. However, "our moral format endorses the Aristotelic, anthropocentric, and hierarchic concept, typical of the slavocratic rationale" [26]. In the Western cultural upbringing, the Aristotelic conception has been taught by the anthropocentric pedagogy.

Biocentric education, therefore, is a pedagogical proposal built from the criticism to eco-colonialist anthropocentrism. This is why we consider it relevant to introduce the theoretical contributions from two Chilean educators, biologist Humberto Maturana, creator of the *autopoiesis* theory and the *biology of knowledge*, in partnership with his former pupil Francisco Varela, theories developed since the 1960s; and the professor, psychologist, and poet Rolando Toro (1924–2010), creator of the Biodance Pedagogy, a theory also developed from the 1960s. The *autopoiesis* theory states and claims that live beings are biologically autonomous, i.e., they are self-sufficient in producing their own vital components while living and coexisting in interaction with their life ecosystem. In their research and philosophical interactions, Maturana and Varela [28] developed two other conceptual breakthroughs: the biology of knowledge and the biology of love (currently biology of loving). The first milestone in this new epistemological outlook is very simple: "life is a knowledge acquisition process," which is why knowledge is the condition for a live being to be alive, and the condition of living is the condition to be building a world that is in a permanent process of change.

Maturana and Varella undermine the modern rationale that became dominant since the West European Renaissance. These Chilean biologists challenge the idea that there is an "objective reality" independent from the beholder, a reality that supposedly could be known and manipulated. According to such rationale, Humberto Mariotti explains, "our brain passively receives finished information from outside," like data are fed to a computer. Thus, "when the way it occurs is scrutinized (i.e., by cognitive science), objectivity is privileged, and subjectivity is discarded as something that could compromise scientific accuracy." This way of seeing and getting to know the world is named representationsm, says Mariotti, and "its main tenet is that knowledge is a phenomenon based on the mental representations we make of the world." Therefore, "the mind would mirror nature" and "the world would contain information, our task being to extract it through cognition." In Maturana and Varela's theory, however, "the world does not precede our experience." According to the research and experiments carried out by the Chilean biologists, "our life path leads us to build our knowledge of the world – however it also builds its own knowledge about us." Therefore, "albeit we fail to notice it immediately, we are always influenced and modified by what we see and feel" [27].

Summarizing, the basic assumptions posed by Maturana and Varela are the following: *a priori*, there is no reality to be discovered or known, there is a world under construction in the condition of getting to know, living, and coexisting of live beings; "living is getting to know—living is an actual action in existing as a live being [28]"; and "Everything that is said, is said by one observer to another, which might be him or her self," i.e., "the observer is a live human being, and anything said about live beings or human beings, or generally organisms, applies to the

observer"; live beings live like autopoietic systems "in a systemic molecular dynamic that continuously produces its self." The primitive condition for mankind to exist followed the line *Homo sapiens-amans amans*, a condition where shared well-being relationships prevailed. This is "the founding and fundamental line in our evolutionary history, and it is still predominates in our biological-cultural present," coexisting with the *Homo sapiens-amans agressans* and *Homo sapiens-amans arrogans* trends. So, contrary to what positivist, liberal and Marxist fundamental theories say, "we, human beings, are loving mammals, bipedal primates belonging to a culturally evolutionary history centered in the Biology of Loving, coexisting in sharing and collaborating, not only in competing or attacking," since "if our biological basis were not amatory, if the human baby were not born on the implicit confidence of bringing love within, the concern of one for the other's well-being would not be possible" [29].

The "Biology of Loving" may be the most controversial among Maturana's theories and also the most liberating them. It is through this theoretical point of view that Maturana and his research partners refute the idea that "competition" is an essential component of life. The "biology of loving" is a vital component of the biological structure of live beings, since every live being is born in a natural or cultural environment that requires loving care and the acceptance of coexisting with other live beings. In the human beings' realm, "love, or, if such an intense word is undesirable, **the acceptance of the other together with us** [our emphasis here] in coexistence, is the biological basis of the social phenomenon." Without love and without the acceptance of the other with us, the authors point out, "there is no socialization, and without it there is no humanity." For this reason, "anything that voids or constrains acceptance from the other, from competition to ownership of the truth, to ideological certainty, voids or constrains the occurrence of the social phenomenon." Thus "it also voids the human being, as it eliminates the biological process that makes it exist." Maturana and Varela (p. 268–269) make it clear that they have no intent of moralizing, much less making an apology to love. Their intent is to demonstrate "the fact that, biologically, without love, without acceptance of the other, there is no social phenomenon"; and that "if coexistence so survives, life is hypocritical in indifference or active denial" [28]. What educational paradigm do Maturana's theories suggest? An education based on the principles of acceptance and respect to ourselves and others, living and coexisting in a way to build knowledge, developing life and the world. This calls for rethinking the school curriculum idea, the way to conceive mistakes and the role of reassessment, the relationship between teachers, students, and school managers, consciously integrated to our respective communities for good living and to "compete" for a job in the marketplace.

Rolando Toro (1924–2010) developed his theory from dancing activities with patients in the Santiago Psychiatric Hospital, in Chile, while he was a professor at the Medical Anthropology study center in the School of Medicine of the University of Chile in 1965. Initially, the therapy was defined as psychodance, and a decade later, Toro attempted to transcend the anthropocentric vision toward a biocentric vision, creating an epistemological framework for the "biocentric education" paradigm, which began to widespread in the 1980s. Toro [30] defines the biocentric principle as the way of feeling and thinking in the existential living and coexisting of live beings. His epistemological assumption is the idea that "the universe exists because there is life"; and that all components of the universe, from the physical elements and live

beings, are part of a larger living system that gets organized to generate life. For the Chilean educator, education is the darkest expression of the crisis of Euro-Western civilization:

- I would like to be extremely sincere in reviewing the energy background of our civilization and its darker expression: Education.

- The contemporary education, in almost everywhere in the West, does not fulfill its task of providing the individual with internal guidelines for development.

- It neither provides the natural germs of vitality nor the values of the intimate. It does not develop creative potentials, intellectual freedom, or the uniqueness of skills. It does not foster the splendor of human relationships.

- Its task is at the service of political and economic power and, to fulfill this mission, it organizes magnificent programs of psychological sterilization.

- The current education tends to produce servile adaptation to the established. It seeks to create a sense of duty and an attitude of respect toward things that are not respectable [30].

Rolando Toro mentions 15 assumptions of the biocentric theory, including the following: biodance is oriented by "an ecological concept of human and cosmic relationships"; biodance postulates a prophylactic action that transcends the borders of conventional therapy, attempting to prevent diseases to manifest; it postulates a community-centered social change system and not client focused; biodance is a theory based on Human Sciences (Anthropology, Etiology, Biology, Medicine, Psychology, and Sociology), and "does not stem from any special ideological, religious, or psychological system"; "biodance is an evolutionary—not revolutionary—system" [30].

Why biodance? Rolando Toro was born in the territory that, before 1492, was occupied by a wide diversity of indigenous people having (and they still have) dance as an existential practice to connect with the natural and spiritual world. Furthermore, Toro lived through the crisis of social, political, and epistemological paradigms that would get expressed in a more striking manner in the rebellions of youngsters, in several countries through the 1960s, against the materialistic, destructive, and consumerist rationale of West European modernity; a rationale that fosters competition, war, and deaths. Biodance theory is hence a theory aspiring to promote life and the peaceful and respectful coexistence of humans and nonhumans alike; it is an approach proposing a new educational/upbringing paradigm for subjects that are capable of feeling, coexisting, and connecting to the life beings community, be it at local level or in any other living environment in the universe; it is a systemic and holistic vision of the world, based on a dialogical interaction between the tradition, wisdom, and knowledge produced by contemporary science.

Rolando Toro says that the "biodance" concept gets close to the idea of *Dancing Your Life*, from the French philosopher Roger Garaudy, who expressed his dance philosophy as one of the vital components of live beings, humans included; to live and interact with nature dancing for life. Dance, according to Garaudy, "is a complete way of living the world; it is knowledge, art, and religion, all at once." So dance "shows us that what is sacred is carnal as well, and the

body may teach what a spirit without a body doesn't know: the grandeur and beauty of the act when man is not apart from his self, but wholly present in what he does"; it is through the dance of life that a man develops his admiration for the sea, the clouds, the fire, or for love, because "love, like dance, preceded man in blossoming," since "among insects, birds, and many other species, dance is part of the love act." For this reason, "dance is not merely the expression and celebration of the organic continuity between man and nature; it is also an accomplishment of the living community of men" [31].

6. Final thoughts

Overall, we found that Latin America reached the end of the twentieth century having accomplished a significant part of the educational ideals proposed and claimed by the generation of educators born and graduated in the first half of that same century. All countries implemented a national public education system "for all." Literacy includes the wide majority of the population. Elementary education has become an obligation of the family and a duty of the state. There are school buildings implemented in all regions, cities, and small villages. Each country has developed its university-level teacher qualification policy. New universities came up, as well as a new breed of educators-researchers. Science and scientific knowledge have been absorbed by the school culture. "Liberal democracy" has become the dominant (and practically only) paradigm of a State, with the exception of Cuba and occasional "Coup" attempts, which are still a political practice fostered and validated by conservative sections of Latin-American countries and imperialistic Northern governments.

Many conquests and few victories—The metrics of violence against the poor, Afrodescendant, and indigenous populations are ingrained in what is known as the "banality of evil." Social disparity between the rich and the poor is shamefully staggering. The national educational system has made significant improvements to the living conditions of many families; however, it is a bureaucratic system that perpetuates the "banking education" rationale and develops a schooled population deprived of intellectual autonomy and critical thinking, as intended by the educators who dreamed about and believed in the transforming role of modern education. Elementary school teachers' working conditions and compensation are still in indigenous and demotivating situation in most countries.

From either left or right, Latin America has adopted the developmentalist model from the West European modernity. The educational system and professional training for teachers were both adjusted to match this model. The inter-ethnical plurality of national States only began to be acknowledged in fact during the first decade of the twenty-first century. Some states dignified the rights of their autochthonous people; however, in most, their situation entails hostility, violence, and exclusion.

Eurocentrism still dominates the curricular structure of national education systems at all levels. Most scientists and educators in Latin America have not yet noticed or acknowledged the effects of the epistemological domain of Eurocentrism in its way of seeing "problems" and "solutions" for Latin America. However, a new generation of educators has undertaken the

challenges left by the generation that designed the initial framework of liberating education, of the decolonial education, of the pedagogy of the *Abya Yala* people, and of the education that values the life and the well-living of all live beings.

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Teachers and Students in a Changing World

The Practice Architectures of Pedagogy: Conceptualising the Convergences between Sociality, Dialogue, Ontology and Temporality in Teaching Practices

Christine Edwards-Groves

Additional information is available at the end of the chapter

Abstract

Amidst constant waves of research seeking to understand and improve pedagogical practices in schools, this chapter positions pedagogy as social practice rather than a more commonly held view of pedagogy as method. It is a view of pedagogy that is centrally interested in the sociality, situatedness and happeningness of practices, and thus requires a theory of practice that treats it as socially, dialogically, ontologically and temporally constituted. Capitalising on the 'practice turn' in education, the chapter utilises *the theory of practice architectures* to consider the relationship between pedagogy, practice and practice architectures. It will be argued that pedagogical practices *as they happen* in lessons cannot be understood without a theory of practice that explains (especially for teachers) how practices unfold discursively through language and sequences of time, and how they are *interwoven* (*enmeshed* or *entangled*) with sites, not just 'set' in them. Empirical material from recorded primary school lessons will be used to illustrate particular practice architectures or cultural-discursive, the material-economic and the social-political arrangements that influence the conduct of pedagogical practice as it happens in classrooms. The chapter seeks to address these three broad questions: (1) how does *the theory of practice architectures* enhance understandings of pedagogy? (2) in what ways does this theory help us to understand pedagogy as social practice? and (3) what influences pedagogical decision making as it happens in the flow of instruction?

Keywords: best practice, constellation of practices, pedagogies for diversity, ecologies of practices, practice architectures, site based education

1. Introduction

The effectiveness and influence of classroom pedagogy forms a staple matter of discussion and debate around the globe. In contemporary education, the widespread call for the continual

improvement in pedagogical practices has pressured the daily work of teachers in ways that force them (or the jurisdictions in which they work) to seek out programs of instruction, curriculums, innovations or assessment regimes that offer solutions to the student learning, performance and achievement 'crisis'. In fact, professional development for teachers has been overburdened with a diet of rhetoric bundled up as 'best practice' that treat practice, and so pedagogical practice, as a unitary bounded package of solutions or approaches to instruction. Furthermore, these idealised notions of best practice sit glibly alongside a culture of performativity and mandated testing of students, neglecting the site based needs and circumstances of particular students, in particular schools, in particular communities. It is a line that neglects the constellation of practices that constitute pedagogy and the particular conditions that influence the conduct of pedagogy as it is enacted in particular sites. As practice theorist Theodore Schatzki ([1], p. 2) writes, such a narrow view of practice,

> Treats the intricate and complex tangle of phenomena that constitutes social life as neatly tied up in a system and governed by systemic principles [and] neglects the contingent, shifting, and fragile relations among social phenomena that weave them into everchanging constellations. The point is not, at least usually, that these phenomena are autonomous and isolated, but instead that they constitute complex nexuses that do not add up to something beyond themselves.

But what if we were to follow Schatzki's [1] lead and take a different view of pedagogy, one that shifts attention to the particularity and sociality of pedagogy as practices enacted in sites? one that accounts for the contingent, shifting and fragile relations among social phenomena like the pedagogical practices that happen in lessons? one that weaves teaching and learning into everchanging constellations of practices? one that views pedagogy as happening in moments? one that considers students as actors in the practices that constitute pedagogy? Such a view of pedagogy would consider the humanistic—and so social—dimensions that form pedagogy in particular places as it takes shape in lessons between teachers and students. It would require a theory of practice that is centrally interested in the sociality, situatedness, and happeningness of practices and one that seeks to understand the particular conditions that enable and constrain the enactment of pedagogy at the time.

Much has been written about the affordances of practice theories for understanding the nature of social life as it exists in education, organisation, politics, and indeed in everyday life. This chapter specifically capitalises on the theory of practice architectures conceptualised by Stephen Kemmis and Peter Grootenboer in 2008 [2] (and developed further by Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer and Bristol in their philosophical-empirical enquiry [3]) to offer fresh, but deeper, understandings about pedagogy as social practice. The theory of practice architectures is a theory, among other practice theories, that represents a systematic way of understanding and representing the conditions and circumstances in which the social, physical and political world exists. In educational work, understanding the practices, behaviours, conditions and/or situations of the teacher and students involved is necessary for framing, conceptualising and reframing (and changing) what happens in places where education practices happen, like in lessons, in classrooms, in schools, in communities. Therefore, any practice theory must also liberate the entangled dimensions of social world to offer ways to understand the multidimensionality, interrelatedness and complexity of practices.

Broadly, the theory of practice architectures is a theory that pushes beyond a rhetorical understandings of education practices by allowing us to "get at" the density, porosity and nuances of practical work [4]. The premise here is simple, but the implications are not. As a primary concern, the chapter specifies the central importance of moving beyond considering pedagogy as method to a view that regards pedagogy as socially constituted (among people), dialogically formed (through language and communication), locally situated (in particular places) and as accomplished in real-time happenings (in a real-time flow). This site-based view means that the influence and role of students are equally recognised in the accomplishment of pedagogy; it would not allow for a teacher-centric account to dominate the discussion. Understanding the practice architectures of pedagogy therefore opens up a view of teaching that provides a more fulsome picture of the realities of the kind of nuanced work teachers do. Specifically, considering pedagogy through the lens of practice architectures conceptualises it as a social practice discerned not simply as a bounded, unified entity but also as performance embodied in enacted practices that are socially, dialogically, ontologically and temporally constituted. Further, it offers an alternative view of pedagogy that illuminates the cultural-discursive, material-economic and social-political arrangements that influence the conduct of practice.

Like notions of practice, the term pedagogy as a term and a concept has been widely utilised but differently understood in different education and intellectual traditions. Pedagogy as it is generally regarded in the Anglo-Saxon tradition centres on the discipline of teaching as it related to method and practice of teaching and learning (sometimes considered the art or science of teaching or function of educational instructional methods ([5], p. 42). In other government documents and curriculum, pedagogy has been variously defined. For example, Education Scotland ([6], p. 9) states that "Pedagogy is about learning, teaching and development influenced by the cultural, social and political values we have for children…in Scotland, and underpinned by a strong theoretical and practical base". The New Zealand early childhood curriculum *Te* Whariki [7] considers "pedagogical practices as facilitating for diverse children their access to knowledge, activities and opportunities to advance their skills in ways that build on previous learning, assist in learning how to learn and provide a strong foundation for further learning in relation to the goals of the early childhood curriculum and cultural, community and family values" ([8], p. 5). In other literature, pedagogy has been described "as the instructional techniques and strategies that allow learning to take place. It refers to the interactive process between teacher/practitioner and learner and it is also applied to include the provision of some aspects of the learning environment (including the concrete learning environment, and the actions of the family and community)" ([9], p. 10). These conceptualisations of the term tie learning to teaching (and so students to teachers) to various degrees, but are distinct from, for example, continental European traditions of *Pedagogik* (Pädagogie) that understands pedagogy as a human science connected to the upbringing of children [10], or the Germanic concepts of *Bildung* and *Didaktik* [11]. *Bildung* is also used as a framing concept in the Scandinavian tradition of folk enlightenment in education that understands pedagogy as the formation of individuals in a civil society, whilst *Didaktik* connects to the multifacetedness of planning and performing instruction [11].

Throughout the chapter the intricate relationship between pedagogy, practice and practice architectures is explored. In the opening section, pedagogy is positioned as a social practice. In

this section, practice is the central axes around reconceptualising pedagogy as social, dialogic, ontological and temporal. Following this, the theory of practice architectures is discussed. It is an orientation that helps direct us towards a more critical appreciation of teaching and learning practices that when interrogated, holds meanings far from the simple, the commonplace or the everyday. Empirical material is drawn from a broader two-year qualitative study conducted in a rural region in New South Wales (NSW), Australia that examined classrooms pedagogical practices in eight middle primary literacy lessons (Years 3 and 4); these sites formed case studies of pedagogical practices. Case study research [12] offers those interested in the conduct of social life a method for examining the constitutive conditions and circumstances that shape sociality. It enables the possibility for drawing out a more detailed picture of the nuances and particularities of singular cases that can be taken together to form a comprehensive description of the phenomenon in question. In this study, the larger corpus of data consisted of 48 recorded literacy lessons and follow-up interviews with the 8 primary school teachers. Transcript extracts will be used to exemplify key concepts across the chapter. Extracts were selected from 2 lessons recorded and transcribed from a Year 3 classroom (students aged 8–9 years). Specifically, transcripts will be used to show the distinctive and dynamic dimensions of pedagogy in practice and how it works as it unfolds in within and through the moment-by-moment interactions which occur in lessons. All names are pseudonyms; transcription conventions presented in Appendix 1. Ethics approval was sought and gained for the conduct of this study.

2. Pedagogy as social practice

Pedagogy is a rich and complex notion that broadly, in the Anglo-Saxon tradition, focuses on teaching and learning in classrooms in school settings. When thinking about teaching and learning in classrooms we are taken directly into the lessons that take place there. As an example, consider this short extract from the summary phase of a Year 3 lesson where the teacher is facilitating student recall of particular facts and terms arising from the earlier science lesson.

Extract 1: Pedagogy in practice

1. Sam: it's dirt, terra is dirt
2. T: dirt, yes Sam, terra means dirt or earth, so:o aqua is water and terra is earth (0.2)
3.   so we've got our little container [with earth-and what's that, Josh?
4. Josh: [a terrarium
5. Sally: it's got to have a top on top of it, a lid to make it work
6. T: mm:m Josh excellent, terrarium, the technical term (0.3) yes a lid, it's gotta
7.   have a lid on it (0.2) right (0.1) okay tell me more Sally, listening everyone
8. Sally: to keep the moisture in=
9. Shay: =h:he to keep our blue tongue ((lizard)) in
10. Ss: ((laughter))
11. T: yes Shay, Bluey is an escape artist you're right about that (0.3) well that's
12.   enough discussion about er:r terrariums (0.1) we're going to write about that
13.   in a minute, but I thought we might have a read first (0.2) Jerome can you 14.
            please get our book stand…

At a fundamental level, this brief segment of classroom talk typifies a pedagogical interactional flow. Taken from an ordinary everyday lesson it shows that pedagogy is "an interactive process between teacher/practitioner and learner" as suggested by Siraj-Blatchford et al. ([9], p. 10). As the lesson happens, it *unfolds discursively* through moments of time, in moments of sociality, with each turn in an interaction following the next to form the discussion about terrariums. By reading through the transcript it becomes clear that the concept of pedagogy—and the teaching and learning practices that comprise it—cannot be understood without accounting for the social. Here, the sociality of pedagogical practice is evidenced since to 'get this lesson done' these students and their teachers interact with one another in the lesson as interlocutors co-participating in instructional dialogues about terrariums and aquariums. In this sense, pedagogy is characteristically social; that is, it is about "participation in an evolving interactive event co-produced by the teacher and students in the doing of it" [13].

As Schatzki ([1], p. 169) reminds us "a phenomenon is social, accordingly, when it pertains to human coexistence". On this he explains that "human coexistence is a hanging-together of human lives that forms a context in which each proceeds individually in the practice" ([1], p. 14). Drawing on the German word *Zusammenhang* to describe the "state of held togetherness" ([1], p. 14), Schatzki asserts that practices are the medium in which human lives interrelate or hang together. For the Year 3 students and their teacher, therefore, their actions, interactions and interrelationships hang-together to form the pedagogical practices of the particular lesson in which they took part. This means that individuals in this cohort of Year 3 students and their teacher come into their participation in pedagogical practices through their sociality that simultaneously forms the social, the linguistic and physical context of 'the lesson' that is, at the same time, governed by particular 'lesson' rules, organisations and arrangements. These orders and arrangements produce both the context of the practice and that they (teachers and students) coproduce in the doing of the lesson. According to Kemmis et al. [3], the sociality of practice itself relies on:

a. forms of meaning-making, comprehensibility, language and understanding made possible through *sayings* and thought shaped discursively in dialogue,

b. modes of action and activity in the physical and material space–time of the particular classroom made evident through *doings* at a place in time, and

c. ways in which teachers and students relate to one another (in power, in solidarity and with agency) and the world experienced through *relatings*, roles and relationships.

In practice, these three ever-present realms of sociality are always held together (as *Zusammenhang*) in a nexus of interrelated practices as teachers and students come into or participate in classroom *projects* like a science lesson on terrariums (as shown in Extract 1).

Based on Schatzki's ideas, Kemmis et al. ([3], p. 31) developed further a definition of practice that characterises practice as:

> *a form of socially established cooperative human activity in which characteristic arrangements of actions and activities (doings) are comprehensible in terms of arrangements of relevant ideas in characteristic discourses (sayings), and when the people and objects involved are distributed in characteristic arrangements of relationships (relatings), and when this complex of actions – or interconnected sayings, doings and relatings - 'hangs together' in a distinctive project.*

Turning to this characterisation of practice illuminates the notion that practices make sense or are comprehensible to practitioners in the practice (like teachers and students in lessons) because of the idea that "a *Zusammenhang* of lives is not interrelated individuals *simpliciter*, but individuals interrelated within and through practices" ([1], p. 14). Practices, consequently, are a dimension of human coexistence distinct - though not separate - from individuals and their actions, interactions and interrelationships. This means individuals in practices make sense of practices through participation; they understand, or come to understand, what is being said, what is being done and how to relate to the others present at the time by being present or participating. Participation in the moment and over time contribute to the emergence and development of particular characteristics of practices - like characteristic or distinctive scientific language and educational discourses spoken in their discussion, characteristic or distinctive school-type listening, reading, writing or science activities, or characteristic or distinctive ways for teachers and students to relate to one another in the lesson like the teacher organising and controlling the turns of talk in the class discussions, or students waiting to be nominated to speak. According to this view of practice, pedagogical practices are formed socially (within the company of others), dialogically (through talk and interaction), ontologically (in particular places) and temporally (in and through time) through a complex of actions constituted by characteristic sayings, doings and relatings that 'hang together' in a distinctive project like learning about terrariums in a science lesson.

Returning to Extract 1, it is evident that in this Year 3 Science lesson, participants (the students and their teacher) enact:

1. characteristic or particular *sayings* formed discursively in language known to and spoken by those present (like using specific scientific terms and language such as terra, aqua, terrarium, earth, moisture, blue tongued lizard; see for e.g. lines 1, 2, 3, 4, 6, 8 & 9),

2. characteristic or particular *doings* formed through doing activities understood and undertaken by those present (like reading a book, writing, engaging in a class discussion; see for e.g. lines 1–10), and

3. characteristic or particular ways of *relatings* developed through the ways these students and their teacher related to one another in their different roles and understood relationships they demonstrate there (like peers in a cohort, or a teacher with power over students).

These characteristic sayings, doings and relatings are tightly entangled and interconnected in ways that formed for them this distinctive project, this particular 'lesson'. These three dimensions of the practice of pedagogy unfold discursively through language in real flows of time as characteristically interdependent and overlapping. However, this is far too simple a view of practices since it overlooks the particularity of the conditions and circumstances that exist in the actual site itself. For example, the particular students in this particular Year 3 classroom knew about blue tongue lizards because their local experience of them enabled them to bring this knowledge into this practice (evidenced in lines 8–10), or that the use of technical terminology is valued and praiseworthy (see line 6). Therefore, it can be said that pedagogical practices *as they happen* [14] in lessons cannot be understood without a theory of practice that explains (especially for teachers as they set about to develop their pedagogical practices) how

practices unfold, and how they are *interwoven* (or *enmeshed* according to Schatzki [15], or as Hodder [16] suggests *entangled*) with sites, not just 'set' in them.

In actual sites (like a classroom lesson about terrariums), practices are always influenced by other things that are both local and external, that both enable and constrain what can possibly be done at the time or what actually happens in reality. Even at the most fundamental level, a teacher might be able to predict the kinds of responses students may offer to her questions because of the students' prior experiences, but this may not determine what actually happens in the lesson itself. That is to say, practices of any kind are influenced by conditions described as practice architectures [3]. In the field of education, Kemmis et al. [3] delineated five practices that have the potential to influence the conduct of the other, namely teaching, student learning, professional learning and development, leading and administration, and researching and evaluating. They refer to these broader practices as the *education complex of practices* ([3], p. 82); and as they found, these education practices also exist in ecological relationships with each other. The conduct of practices, therefore, is not a seamless flow of sayings, doings and relatings; rather, practices are never neutral but always mediated (enabled and constrained or influenced) by practice architectures (site-based exigencies or influential conditions). Thus, to strengthen understandings about the nature of pedagogy, and teaching and learning as it is experienced in actual lessons, we need to understand both the practices *and* the practice architectures that simultaneously constitute (and mediate) and are constituted (and mediated) by locally produced courses of action as well as the situated pre-existing conditions present in the site.

3. The theory of practice architectures

The theory of practice architectures [3] is among a broad group of practice theories that draw attention to social life, and in particular the different and distinctive ways people, objects, discourses, relationships, activities and circumstances are entangled *in practices* in sites. It is a theory interested in the sociality, situatedness and happeningness of practices, thus conceptualises all practices as being formed socially among and between practitioners as they encounter one another. Fundamental to the theory of practice architectures is the importance given to the arrangements that enable and constrain the conduct of practices in any given site at. It suggests that practices – like teaching and learning practices - always involve people (or practitioners) interacting with one another in and through language, people doing particular things together, and people relating to one another and the world in particular ways. The theory of practice architectures thus explains how human beings (e.g., students, teachers and others) orient to, and so encounter, one another as interlocutors in practices through:

- *sayings* bundled with cultural-discursive arrangements in *semantic space* (in the medium of *language*),

- *doings* bundled with material-economic arrangements in *material physical space–time* (in *activity* or *work*), and

- *relatings* bundled with social-political arrangements in *social space* (in *solidarity, individual and collective agency* and *power*).

This complex of actions – or interconnected sayings, doings and relatings – exist as bundles 'hanging together' in projects like in a lesson teaching students about terrariums. Furthermore, as Kemmis and colleagues ([3], p. 2) suggest, understanding the theory of practice architectures,

> *depends upon orienting ourselves and one another to a shared culture through shared language and symbols,*
>
> *orienting ourselves and one another to the same salient features of the* material space–time *we inhabit,*
>
> *and orienting ourselves and one another* socially *and* politically *amid arrangements that contain and control conflict, secure social solidarities, and give us our agency, selfhood and identities as members of families, communities and organisations.*
>
> *It is an achievement secured by human social* practices *– the practices by which we secure and stabilise the world of today as continuous with the world of yesterday, and as the precursor of the world of tomorrow.*

The theory explains how particular arrangements (present in the dimensions of the cultural-discursive, material-economic and social-political) found in or brought to a site influence how practices actually happen in real time in real sites; for instance, government endorsed curriculums are practice architectures for teaching since these may influence what language might be used in a lesson or what activities might be done or even how the teacher relates to the students in the course of a lesson. Pedagogical practices as social phenomena encompass interconnectivities between:

- *cultural-discursive* dimensions secured interactionally in language and understanding (or what is said, how it is said, what words are used in lessons),

- *material-economic* dimensions secured interactionally in the doing of the activities in physical space–time (or what is done, how it is set up in the space, what resources are required in the conduct of lessons), and

- *social-political* dimensions secured interactionally through relationships (or ways of relating, who relates to whom and the displays of power, agency and solidarity at any given moment in lessons).

In practice, these arrangements are present in the intersubjective spaces which 'lie between' people in temporally located spaces in time and place. In these intersubjective spaces teachers and students in classrooms for example display through their talk and their actions levels of comprehensibility of one another and what is happening; that is, in semantic space, in physical space time and in social space. Practices, thus, are interactionally secured. And so, practitioners of practices comprehend one another in shared language, coordinate their activities with one another in talk and interaction, and connect with one another in social relationships.

From this, pedagogical practices (the sayings, doings and relatings encountered in lessons) and the practice architectures that shape them, do not simply exist as contained, arbitrary or isolated entities. They are enabled and constrained by other practices and practice architectures, but also are enabling and constraining of other practices and practice architectures. For example, particular teaching practices create conditions for particular student learning practices – and vice versa. So, practices themselves create conditions for the conduct of other practices and other practice architectures. The complexity of practices and interconnectedness between practices and practice architectures has been represented diagrammatically by Kemmis et al. [3], and is presented in **Figure 1**.
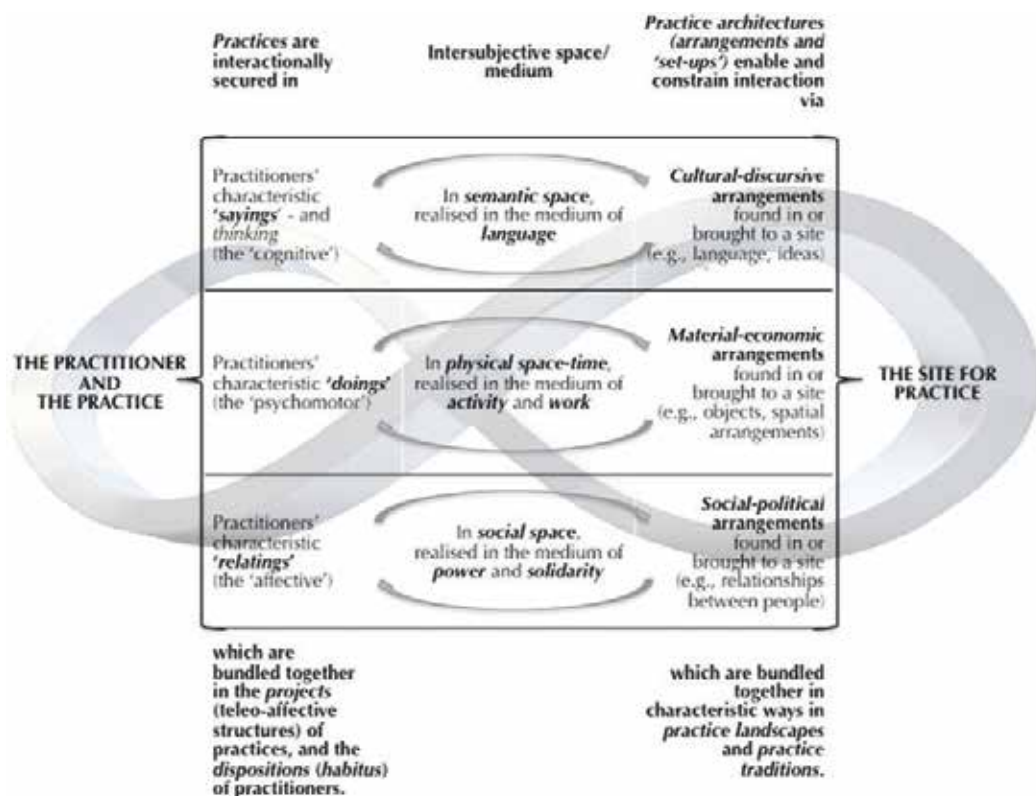
Figure 1. The theory of practice architectures ([3], p. 38).

The conduct of practices is never neutral but always undergirded by prior experiences of all practitioners involved as well as pre-existing ideas, ideologies, traditions of the field, discipline knowledge, standards, curriculums and policy agendas and so on. This is described as the prefiguration of practices. However, enacting practices (in the moment) is not only influenced by what conditions pre-exist at the site but by what is brought into the site (like particular resources, ideas, policies, language) and by who is present at the time (like students, others teachers, colleagues, the principal) and the relationships between them. Each of these dimensions of practice influence or prefigure the happenings, but do not necessarily determine what actually happens at the time. According to Kemmis and colleagues ([3], p. 90),

> The formation of learners' capacities to 'go on' in and to be the bearers of practices can best be understood as occurring in a lived dialectical relationship between participants' sayings, doings and relatings and the way they hang together in the project of a practice, on the one hand, and, on the other, their lived encounters and engagements with the practice architectures (cultural-discursive, material-economic and social-political arrangements) that are laid down and developed in practice traditions. On this view, practices are paths for those who walk them, ways of being for those who inhabit them.

> Myles Horton and Paulo Freire gave their 1990 book about community education the felicitous title We Make the Road by Walking. For us, the title captures the way practices make paths, on the one hand, and, on the other, how the practice of walking paths, whether paths already laid down or trails we blaze for ourselves, also makes us. We see practices as passages through time and space that people enter and that people make: they enable and constrain our movement in time and in semantic, physical and social space.

From this, it can be said that practices are made in the doing. Furthermore the conduct of practices is always pre-figured by other practices and practice architectures, but not necessarily pre-determined [3]. In this way, practices are not fixed or static because they are always created, organised and enacted anew at the moment of happening, are prefigured but not predetermined, are always enabled and constrained by other practices, are always dynamic and contestable in their conduct, and always occur amid other practices.

In summary, the theory of practice architectures orients to and avails itself of seven master concepts about practice that propose that:

1. Practices are social

2. Practices are constituted by sayings, doings, and relatings

3. Practices are site based and so nuanced and distinctive to conditions that exist at the site

4. Practices are shaped (or enabled and constrained) by practice architectures or mediating cultural-discursive material-economic social-political arrangements

5. Practices are made and remade in the doing of it at the time in everchanging constellations

6. Practices are ecologically arranged and interdependent with other practices

7. Practices account for the individual and the collective

This line of thinking inaugurates the possibility of viewing pedagogy as a constellation of practices enabled and constrained by conditions or practice architectures present at or brought into the site.

4. The practice architectures of pedagogy

In practice (as it happens), as shown in the previous section, practice architectures exist as three kinds of arrangements always intertwined with one another, each irreducible to and influential on the others. In this section, we will see the ways practices and practice architectures 'bundle' together at both a minute and more molar level in lessons as sites of pedagogical practice. In particular how pedagogical practices become ontologically *interwoven* (or *enmeshed*) with people and other objects in specific sites like classrooms *as they happen* will be illuminated. As Schatzki suggests ([17], p. 16), this is a necessary direction, "[b]ecause the relationship between practices and material entities is so intimate, … the notion of a bundle of practices and material arrangements is fundamental to analysing human life". As the empirical material presented next will show, this is a view of pedagogy that will extend perspectives on pedagogical practices in new directions towards being understood as socially, dialogically, ontologically and temporally constituted (see also [18–21]), but at the same time enabled and constrained by practice architectures.

One main way to understand the nature of pedagogy and the practice architectures that influence its conduct in lessons, is to examine transcripts. Lesson transcripts, as a technology for analysis, show how teachers and students in their lessons meet one another as interlocutors

in language, in the doing of activities and by relating to one another in different kinds of interpersonal relationships. Consider this next extract recorded in the same Year 3 classroom but occurred after the science lesson presented earlier (Extract 1). Here, the teacher Mrs. Kallo (T) begins the English lesson focused on writing with an organisational phase, followed by discussion about camouflage based on a jointly read text which acted as a shared reading stimulus for the subsequent writing task.

Extract 2: Practice architectures and pedagogical practices in Year 3 shared reading

1. T: …before our writing task let's have a bit of a read to get some ideas (0.2)
2.   everybody stand up, get in a comfy spot on the floor so you can see (0.4)
3.   everyone↑ facing front, no Jase (0.2) beside your talking buddy ((students
4.   shuffling)) the way we do for our reading (0.3) have a stretch cos you've been
5.   sitting on your bottoms for a while. Jane?
6. Jane: can I go to the (toilet)?
7. T: Yes (0.3) big stretch up, o:oh now sideways, okay down you go (0.2) sitting↑
8.   ready? (0.4) ((various noises from students)) Mrs Celi will think we don't do
9.   anything but learn big words, cos this new book is a-all about a big word (0.2)
10.   remembering↑what was the other big word? c'mon now recalling the rich
11.   vocabulary we learnt in our science groups this morning? away from the bin 12.
           Max (0.2) where's your partner?
13.   S1. [terra, terrarium
14. S2.   [aquarium
15. S3.   [°camouflage°
16. S(s): ((overlapping utterances from students))
17. T: I'm gonna ask you two in a minute ((points to students)) (0.3) there's
18.   something in this picture? ((teacher pointing to the picture on the cover))
19. Josie: it's there, Mrs Kallo, the lizard
20. T: Don't call out, wait your turn Josie, be fair! We all get a say here,
21.   wait your turn. There's an animal in this picture, can you see it?
22. S(s): [Yes::s] [Yes] [Yes]
23. S4:   [It's a lizard
24. T: Can you see what it is?
25. S(s): [Ye::es
26. Ben: [no::o
27. T: Why not Ben?
28. S(s): ((utterances called out from students))
29. Ben: Cos its granite it's made out-it's made out of, like rock
30. T: Do you think it's really made out of rock, Ben?
31. Ben: No, it's a thorny devil
32. S(s): [No::o
33. S5:   But it looks, as if it's made out of rock, or stone=
34. S6:   =it's camoufla[ged
35. T: [it's camouflaged isn't it? that was that other big word we learnt,
36.   it's a good metaphor though, skin looking like granite, well let's have a closer

37.		look, there it is, the thorny devil, looks like granite,
38.		what's he look as if he's got on him=
39.	S7:	=grass or something
40.	Eva:	it's moss
41	S(s):	((overlapping utterances from students))
42.	T:	moss, yeah Eva, called lichen, but lichen's stuff that grows on rocks, do you
43.		think he really has got lichen growing on him?
44.	Eva:	No↑
45.	T:	No, but they made him look like that-or he looks like that so, he can hide
46.		from who? Ewan?
47.	Ewan:	His pred, predators
48.	T:	His predators? yes good Ewan, so he's really gotta a pretty good defence
49.		because it's very hard to spot him there.
50.	Jax:	Mrs Kallo, I know its predators
51.	T:	Ok::ay Jaxon, who would like to catch the lizard, what do you think?
52.	Jax:	a wedgy
53.	T:	be more explicit
54.	Jax:	a big wedgetail eagle
55.	Sara:	[I know (0.1) a cat, a feral cat would like to eat that nice little juicy lizard
56.	Mel:	[a bird
57.	T:	a cat might, but wowee::ee! what beautiful adjectives Sarah! what an express-
58.		-ive sentence, it gives us a clear image in our minds. Yes? hands up, Mel?
59.	Mel:	A bird might↑
60.	T:	What sort of a bird-a little willie wag tail? What sort of a bird? Mel?
61.	Mel:	No, a big bird, like magpies and, and a big, big wedgetail eagle
62.	S(s):	[foxes][the ferals][feral cats]((overlapping responses from other students))
63.	T:	woa::ah, hang on, good discussion points but let's listen to each other,
64.		no calling out, you all have such good information to build on and add

Specifically, by examining the turn-by-turn moments of classroom dialogue the focus shifts towards considering how pedagogy works interactively at the moment it happens; that is, showing how through turn-by-turn exchanges teachers and students co-create meaningful talk and interaction, pedagogical activities and roles and relationships. These are the very practices upon which they rely to support learning in this lesson. Broadly, across this phase of the Year English lesson, teaching and learning practices are held in place or bundled together as a constellation of pedagogical practices amid the particular:

1. *cultural-discursive* arrangements found in (or brought to) the lesson as a site of pedagogical practice; these arrangements enable and constrain the *sayings* characteristic of the practice,

2. *material-economic* arrangements found in (or brought to) the lesson; these arrangements enable and constrain the *doings* characteristic of teaching and learning, and

3. *social-political* arrangements found in (or brought to) a site; these arrangements enable and constrain the *relatings* characteristic of teaching and learning practices.

Not one of these arrangements exists as an entity on its own, but each is a practice architecture for the other. Examining the particular arrangements that enable and constrain the characteristics of the practice ([3], p. 32) offers insight into questions that asks us to consider what influences pedagogical decision making as it happens in the flow of instruction. Transcript analysis shows the distinctive and dynamic dimensions of classroom dialogues as produced in lesson practices, and how this works to influence student's learning and teacher's teaching as these unfold in the moment-by-moment interactions which occur in lessons. Furthermore, at a deeper level, examining transcripts reveals how pedagogical practices are composed as interlocutory activities primarily concerned with intersubjective meaning making. **Table 1** brings together an example of the constellation of practices and practice architectures that shape the conduct of pedagogical practices found in a lesson (evident in Extract 2).

As **Table 1** illustrates, grasping the intricacies of the pedagogical enactment, requires understanding how the bundles of practice architectures arrange practices as they unfold discursively through language and sequences of time, in actions and interactions. In lessons, these occur as a body or constellation of practices intertwined or enmeshed in the doing; and further simultaneously enable particular kinds of sayings, doings and relatings to exist or come to exist in classroom lessons at the moment of enactment. In other words, teaching and learning practices in classrooms both constitute and are constituted by the particular words used (scientific terminology is required to make the lesson characteristically a science lesson or an English lesson), the particular activities done (like the discussion that required students to recall the scientific terms encountered earlier) and the particular relationships which exist between the teachers and students present as they listen to one another, comply with the teachers expectations. But added to this, practices are also influenced by other conditions (like the curriculum or a teacher's professional development program) that may prefigure but not necessarily predetermine what actually happens in the discursively-produced flow of lesson interactions (like the student's actual responses to a teacher question). This means that pedagogy in the moments of enactment is influenced, but not predetermined by prefiguring conditions or practice architectures.

The pedagogical practices experienced and produced here in this lesson are thus encountered as, and made evident through, the social exchanges between the teacher and students that formed *sayings* in and though particular language, that formed *doings* in and through particular activities, and that formed *relatings* in and through particular ways of relating reflecting different roles and relationships. These three dimensions of practices formed the basis of *how* and *what* practices meet the students, and as the 'lessons' progresses through the realities of time students display their understandings of the particular lesson context - the language, the activities and the ways of relating in the lesson as a context for learning something new – by their responses and actions in the practice itself. Furthermore, the students (as individuals and as a collective) are recognisably co-producers of the pedagogy [25], contributing to shaping or influencing how the lesson unfolds at the time.

As Schatzki [1] recognised, and Baker [26] identified empirically, persons (like students and the teacher) proceed individually in the practice but as interlocutors through shared activities, actions, interactions and interrelationships, and at the same time co-create the very context

Practice architectures	Broader prefiguring practice architectures (examples)	Practices found in (or brought to) *the lesson as a site of pedagogical practice*	Examples from Extract 2
the *cultural-discursive* arrangements	the externally mandated national curriculum; the school's local policy outlining the integration of English with other disciplines like Science; student's prior knowledge of local fauna (like wedgetail eagles, blue tongue lizards, the impact of feral animals on native fauna) and specific usage of technical terminology; teacher's knowledge of the student's rural background experiences; teacher's prior knowledge of science and English instruction	*sayings* constituted by the discipline content or technical language of science which has particular meanings attributed to them in science	e.g. *terra, terrarium* (line 13); *aquarium* (line 14); *camouflage* (line 15); *granite* (line 29); *thorny devil* (line 31), *moss* (line 40); *lichen* (lines 42, 43); *predators* (line 47); *wedgetail eagle* (line 54)
		the language of the English curriculum which has particular meanings attributed to English instruction	e.g. *getting ideas* (line 1); *rich vocabulary* (line 10–11; a *good metaphor* (line 36); *beautiful adjectives* (line 57); *expressive sentences* (line 57–8); *clear images in our minds* (line 58); *good discussion points* (line 63); *good information to build on and add* (line 64)
the *material-economic* arrangements	arrangements of desks in the room; resources like books and computers are differently arranged in the English lesson as distinct from the science lesson to enable this particular reading activity to be 'done'; the teaching and learning resources available at the school; prior participation in science groups; prior participation in the science lesson on terrariums; teacher's prior knowledge of the kinds of activities and resources required for teaching reading, writing and science; student's knowledge of 'the way we do reading'	how the physical set-ups of material objects in the classroom space or how the students are positioned, seated or arranged in the space influence what is or can be done	e.g. *get in a comfy spot on the floor* (line 2); *everyone facing front so you can see* (line 2); sitting *beside your talking buddies* (line 3); seated in *science gro*ups (line 10); moving *away from the bin* (line 10); or *on the floor* or sitting next to their *partner* (line 11); seeing *the picture* on the cover of the book (line 17–8)
		doings shaped by particular activities forming this lesson phase like learning 'big words', having a whole class discussion, remembering and recalling	e.g. reading - *have a bit of a read* (line 1); *getting ideas* (line 1); revising - *remembering and recalling* vocabulary (lines 10); *learning* (line 11); answering teacher questions *I am gonna ask you two in a minute* (line 17); being *more explicit* (line 53); adding *good discussion points* (line 63); *listen to each other* (line 63), *you all have such good information to build on and add* (64)
the *social-political* arrangements	teacher's prior knowledge of the students (interest, abilities and behaviours); teacher's pedagogical knowledge about the benefits of group work; the teacher's recent professional development about dialogic pedagogies [22–24]; prior experiences of the interactional conduct and behaviour management of students in lessons e.g. teachers nominating the next speaker, complying with the teacher's requests	*relatings* shaped by the ways teachers relate to their students would be different to how students would relate to their peers; students address the teacher in a formal way; following lesson rules	e.g. working in *g*roups (11); like working with their *partner* (line 12); like *being fair* (line 20) and *waiting your turn* (line 21); *we all get a say here* (line 20); addressing the teacher appropriately *Mrs. Kallo* (line 19, 50); teacher asking for students opinion, *what do you think?* (line 51); teacher calling for *'hands up'* (line 58); or *listening to others* (line 63); *no calling out* (line 64)
		positioning of students on the floor beside their 'talking buddy' but facing towards the teacher influences how they relate to others	*everyone facing front* (line 3); sitting *beside your talking buddies* (line 3) or *partner* (line 12)

Table 1. Practices and practice architectures of lessons.

and the conditions that form the practice itself. Underpinning this perspective is the knowledge that all classrooms share one thing in common - they are unique social sites whereby teaching and learning activities happen whilst simultaneously constructing the roles and relationships between teachers and students [13]. These exist and evolve as enmeshed conditions which enable and constrain the kind of practices that can happen there. Teachers and students use their knowledge and past experiences of these contexts to generate appropriate behaviours, and the appropriateness of those behaviours, in turn, serve to define the context in which they interact [27]. These are mutually constitutive as students learn the ways of learning in lessons by participating from the moment they enter the practice.

Data (presented in Extracts 1 & 2 and **Table 1**) show that in real lessons in real sites, pedagogical practices are socially, dialogically, ontologically and temporally formed. That is, pedagogical practices are socially constituted (among people like students and teachers), dialogically formed (through language and communication comprehensible to those present), locally situated (in the particular classroom in the particular school in the particular community) and accomplished in real-time happenings (in the real-time flow of activity, action and interaction). This is a site-based view that regards as central the reciprocity of influence between and across the practice architectures made apparent in the

- *cultural-discursive* dimension of practices, whereby the different language and discipline knowledge and communicative linguistic competencies *influence the semantic space* and the particular sayings brought to bear on the pedagogic interactions in the lesson as it occurs;

- *material-economic* dimension of practices, whereby the different actions, activities, resources and material set ups present *influence the physical space–time* and how people present can do their work and relate to one another; and,

- *social-political* dimensions of practices, whereby the different roles students and teachers have in the doing of the teaching and learning and *shape the social space* and how they relate to one another, what power they have to act, how they act in solidarity with others and the agency or capacity for decision-making or acting autonomously.

These arrangements occur as intertwined or enmeshed dimensions of practice, enabling particular kinds of sayings, doings and relatings to exist or come to exist in classroom lessons. In other words, practices in classrooms both constitute and are constituted by the particular words used, the particular things done and the particular relationships which exist in the interactions between the people and things involved. A site based view also regards students and the teacher as being equally influential in the happeningness of accomplishing pedagogy, yet recognises too that the ways students are positioned with greater or lesser degree of power, solidarity and agency also influences the conduct of practice in the end. In these three dimensions, therefore, the extent to which the practice architectures exist in a site and influence the conduct of the practice at the time, appear to a greater or lesser degree as practices are made and remade each time, through time. These form part of the mediated nature of practices and practice architectures that also influence the possibility of other practices in the future.

In this vein, pedagogy cannot be taken to be simply an overarching term since i) this would gloss the complexity of teaching and learning as it happens at the time; ii) teaching and learning as it happens responds to the individual persons and the circumstances present in the

moment; iii) at the moment of happening pedagogical practices (made visible in the specific language, the specific activities and the specific ways of relating at the time) are influenced by the specific practice architectures encountered at the time; and iv) practices are also influenced by what has been encountered previously [23]. Thus, in any one lesson, like the English lesson presented in Extract 2, practices and practice architectures may be different from those encountered and produced in any subsequent English lesson, or different to the arrangements found in a Science lesson in the same classroom (since different and characteristic vocabulary or terminology is used that render it a discipline-specific lesson, or different configurations of student groups are used). In the conduct of lessons, therefore, teachers must respond adeptly to student and community reality and diversity: cultural, linguistic, economic, regional and social differences. And as Kemmis et al. [3] showed, that responding to diversity requires understanding pedagogy as it is enacted in real sites, under real conditions at every school; that is as *site based education*.

5. The theory of practice architectures: a conceptual framework for understanding pedagogy as site based education

The interest in practices and practice architectures presented in this chapter stems from decades of theoretical and empirical work highlighting the sociality of teaching and learning. Utilising the theory of practice architectures offers some new insights into questions concerning pedagogy; these are summarised briefly next.

5.1. New contributions of this theoretical position

Broadly, the theory of practice architectures draws attention to *how* local or site based, as well as systemic external, conditions influence the conduct of pedagogical practices. Thus, it offers a fresh perspective on what happens in lessons in schools against the relatively volatile background of performativity, the measurement of the efficacy of teaching practice and student learning outcomes, and the rigidity being applied to the implementation of curriculum. It affords a view of pedagogy that necessarily accounts for the ways a constellation, body or assemblage of locally produced and intertwined practices and practice architectures shape what happens in sites of practice. The theory of practice architectures *re-centres* the significance of the sociality, situatedness and happeningness of classroom practices at both a *molar* and *micro* level in ways that enables the analyst *to get at* the diversity that exists in pedagogical practices.

While many traditional accounts of pedagogy as method place great store in technè or the techniques of teaching for learning, the theory of practice architectures contributed to the field of social science for its capacity to show the nuances and distinctiveness of the practices and practice architectures of pedagogy that may indeed remain elusive in a highly complex field of study. It takes understandings about the conduct of pedagogy beyond a tacit more instrumental level to reveal the ways practices themselves get accomplished in the everydayness of particular social happenings like classroom teaching and learning. In particular, it offers

purchase on how teachers and students enter into and create shared spaces for understanding and extending each other as learners and teachers in the semantic, physical and social spaces that form lessons. This is a view that orients to understandings about how the semantic, physical and social spaces of practice form the intersubjective nature of learning and teaching in classrooms. According to this view of practice, students become practitioners of learning practices by co-inhabiting particular intersubjective spaces with their teachers and peers in classroom lessons (over historical time and in physical space–time), and by employing particular sayings, doings and relatings appropriate to the practices of particular disciplines. Going further, the study of transcripts, like those presented in this chapter, reveals 'the collaborative ways in which members manage their conduct and their circumstances to achieve the orderly features of their activities' ([28], p. 7).

Returning to the questions that framed this chapter, the discussion shows how *the theory of practice architectures* adds insights into understandings about pedagogy as a practice, the ways the framework of the theory of practice architectures helps to conceptualise the sociality, situatedness and happeningness of pedagogy as it is produced in lessons. Furthermore, it offers enhanced perspectives about the local and broader systemic conditions or the cultural-discursive, material-economic and social-political arrangements that influence pedagogical decision making as it happens in the flow of instruction. From this position, understanding the practice architectures of pedagogy, strictly applied, counters more narrow but universal conceptualisations about pedagogy as method to liberate an inherently social view of teaching and learning. It opens up more restrictive and ambiguous perspectives of pedagogy to reveal an intersubjective positioning that orients to this view: *that to speak about pedagogy is to speak about how practices are socially, dialogically, ontologically and temporally constituted.*

6. Concluding remarks

The chapter aimed to offer a practice perspective on pedagogy through the lens of the theory of practice architectures and to do this it took up the challenge of reflecting critically on the teaching and learning that happens in lessons. Broadly, the chapter proposes the relevance and utility of considering the theory of practice architectures for research on pedagogy. The rendering of pedagogy presented is theoretically innovative in that it seeks to understand the more complex relationships between practices and practice architectures made apparent in the cultural-discursive, material-economic and social-political arrangements that influence the teaching and learning practices that occur in school settings. The ideas across the chapter have strong implications for teachers and leaders involved in practices of pedagogical decision making, since understanding how the practice architectures of pedagogy plays a decisive role in allocating life chances for young people is necessary for securing 'best practice' as a condition for efficacy, development and sustainability. Ultimately, this requires identifying the practice conditions that advance education itself in particular places as it leads to broader understandings about how and why some pedagogical practices persist and resist the constancy of change and the pressure of performativity, measurement and accountability.

The utility of the theory of practice architectures as applied to understanding the notion of pedagogy as a practice presents new conceptual work that concerns the interrelatedness and convergences between sociality, dialogue, ontology and temporality in teaching and learning. First, it is a conceptual position that shows the particularity of practices since as practices unfold discursively through moment of time they are particular to the persons involved, particular to the place in which they happen, particular to the actions and interactions of those present, and particular to that moment. Second, it shows how pedagogical practices are arrayed and enmeshed with people as they encounter one another through language, dialogue, activity, interactivity, and particular ways of relating that form semantic and social spaces. The theory of practice architectures advances notions about how disciplinary knowledge gets brought in, and enacted in and through practices in educational settings, and specifically opens the scope for discovering how diverse practices become interwoven in local sites or local practice landscapes. Third, this new conceptual work also addresses how practices are arrayed and enmeshed with people and other material objects as unfolding in real timespaces of human activity [15]. Finally, the theory of practice architectures is a theoretical position that contributes to understandings about how educational practices are developed in the local sites with which they are enmeshed, and about the teaching and learning practices necessary to support, develop and contribute to *site based education*.

Acknowledgements

A. Appendix 1

Transcription conventions (adapted from [29]).

[[	Utterances that begin at the same time
[	Overlap in speakers' talk
]	Point where simultaneous talk finishes
=	Talk between speakers latches of follows without a break
( )	Indicates length of silence e.g. (0.2)
:::	Indicates that a prior sound is prolonged e.g. li::ke
-	Word is cut off e.g. ta-
> <	Words enclosed within are said at a faster pace than surrounding talk

?	Rising inflection
¿	Rising inflection but weaker than ?
.	Stopping fall in tone
,	Continuing intonation
!	Animated tone
↑	Marked rise in pitch
↓	Marked fall in pitch
<u>no</u>	Underline indicating greater emphasis
CA	Upper case indicates loudness
°	Softness e.g. It's a °secret°
(it is)	Words within are uncertain
( )	Indicates that some word/s could not be worked out
(( ))	Verbal descriptions e.g. ((sits down))

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Teacher Pedagogical Choice

Peter Burridge

Additional information is available at the end of the chapter

Abstract

This chapter examines teachers' pedagogical decisions and how routinization of practice can lead to the ineffective application of pedagogy that hinders student development and achievement. Identification of tacit knowledge that supports routinization can enable teachers to critique their teaching practice and identify pedagogies that are more appropriate for the students they teach. The work of Bourdieu and Giddens provides a sociological framework to analyse the influences on pedagogical decision-making. Evidence from a case study is used to illustrate how teacher professional habitus, motivation, ontological security, routinization and time and space interact to inhibit or enable expansion of teachers' knowledgeability and the frames of practice inform their choice and development of pedagogy.

Keywords: pedagogy, teacher decision-making, Bourdieu, Giddens, routinization

1. Introduction

It is recognised that teachers' make a difference to student learning [1]. The way they develop relationships with students, the classroom culture that is promoted, and the learning activities that are selected all influence students' motivation and engagement. These important pedagogic decisions are influenced by many factors, as classrooms are complex environments, with one adult teacher working with up to 30 young people of both sexes from a range of social and cultural backgrounds. This complexity increases, as the teacher's classroom is one of many within a school organisation that is managing to meet the needs of students, parents, teachers, administrators and government departments. However, the essence of the school is not the organisational structure or the buildings but the vast array of social relationships and interactions that occur in the normal *durée* of the school day. Understanding the social milieu found in schools provide insights into teachers' pedagogical choice.

From John Hattie's meta-analysis studies we know that a teacher's influence on student achievement can be significant, but we also know that some actions are more effective than others [1]. Teachers need to be cognisant and targeted in the pedagogies they select to support student learning, something that is easily said but difficult to achieve due to the many influences on teachers' decision-making.

This chapter examines the influences on teachers' pedagogic choice, drawing on data collected from teachers and students over a 2 years study. Five factors that affect teachers' decision-making are presented, exploring how these factors interact to support or inhibit teachers to reflect on their teaching practice. The chapter concludes with a summary of the conditions that will support teachers to examine their practice and expand their knowledgeability about pedagogy.

2. A sociological framework to understand pedagogical choice

Bringing together the work of Pierre Bourdieu and Anthony Giddens provides a sociological framework that can be used to explore the social interactions that affect teachers' selection of pedagogy. Bourdieu's theories of social and cultural practice encompass the social aspects of teachers' pedagogical choice. His theories identify the role of habitus (our way of viewing and responding to the world) on our decisions and actions [2]. Habitus is the system of schemas of perception and discrimination people use to navigate their way through the social world and are developed through life experiences starting with the formative years of childhood. The combination of habitus and the social, cultural, economic and symbolic capital that we initially inherited from our parents moderates our actions and behaviour that Bourdieu refers collectively as practices [2]. People who inherit similar capital will tend to develop habitus that express similar tastes, values and behaviours and the inhabiting of similar social space. This social space is more than a class association. It "tends to function as a symbolic space, as space of lifestyle and status groups characterised by different lifestyles" [3]. These spaces can provide the individual with a range of support including, identity, security and power. These symbolic spaces are created, maintained and reproduced by the interaction of capital, habitus and practice. Consequently, there are a myriad of symbolic social spaces depending on the combination of habitus, capital and practices.

Student's habitus and capital will affect their readiness for school knowledge and will influence how students engage or resist school structures and the teaching practices being employed. Teacher's habitus will influence how they understand teaching practices and how they engage with students in their classrooms. Social groups will also form in the classroom as students identify with peers inhabiting similar social spaces. If the teacher does not develop a classroom culture that brings different social groups together, they may struggle for power and control in the classroom and undermine student learning.

Unravelling habitus and social spaces in the classroom can illuminate how students' background may affect interaction in the classroom and influence pedagogical decisions, but it does not take into account the range of external factors, such as school structures and educational

policy. It does not link people and their actions to social structures. Giddens' theory of structuration does provide this framework as, Shilling summarises, "structuration theory does provide a new way of looking at the relationship between social interaction in schools and the reproduction of the major structural principles which characterise society" [4].

Giddens' theory attends to external factors that influence decisions, linking a person's action mediated by habitus with social structures. Social structures are rules and resources which can be both enabling and constricting on people's action, for example, religious groups, kinship groups or labour unions. These structures arise from social practices that are maintained over time. Giddens' theory identifies that the actions of people who make up social structures, such as schools will be influenced by these same structures and these same people will, in turn, influence the social structures through their actions [5]. For example, in Western countries, education and learning in schools are dominated by a scientific rationalist worldview. This is enabling to students when they use logical reasoning to gain a greater understanding of the world, but it is also constricting, as the dominance of scientific rationalism diminishes opportunities to use other approaches when faced with problems or understanding observed phenomena [6]. The dominance of this worldview is maintained by both the school structures, such as curriculum documents and through teachers' actions following these guidelines. This dominance will be maintained unless teachers' exert their agency and introduce other approaches and worldviews.

Time and space provide the cultural and historical context for the development of social structures. People's past actions have informed the current structure, and the longer these structures have been maintained, the more stable they become. This does not mean structures are unchanging as it is people's actions that determine the social structures and it is their actions that can create change. The difficulty is identifying the need for change. Social structures provide routines for people to deal with day-to-day activities of social life. These routines enable people to draw on tacit understanding to predict the actions of others, which at times seem automatic. Giddens' calls this routinization,

> *"The concept of* routinization*, as grounded in practical consciousness, is vital to the theory of structuration. Routine is integral both in continuity of the personality of the agent, as he or she moves along the paths of daily activities, and to the institutions of society, which are such only through their continued reproduction "* [7]*.*

Routinization provides predictability and feelings of being in control, which is the essence of ontological security. Feeling secure that regular events will occur lowers anxiety and frees the mind to be attentive for more unusual events. Ontological security increases the stability of social structures that strengthens with time, so for change to take place, people must become aware of their tacit understanding if they are to act purposefully that result in change.

To summarise, the work of Bourdieu enables identification of habitus and the power of social groups' influence within social structures. Giddens' work provides an understanding of the interaction of individuals with social structures, which lead to structural change or structural maintenance. Combined these two theories provide an insight into the social interaction at an individual, group and organisation level and uncover the range of factors that influence the pedagogical choices of secondary school teachers.

3. Influence on teachers practice and decision-making

There are five significant factors that influence teachers' pedagogical decisions: habitus, teacher motivation, ontological security, routinization, and time and place. These factors are not always apparent to teachers resulting in unintended conditions that produce unintended consequences, which may inhibit or enhance student learning. Teachers' awareness of these factors can enable them to recognise the unintended conditions and make more effective pedagogical judgments.

An overview of each factor will be discussed, followed by how these factors inform pedagogical choice. Snippets from a case study will be threaded through the discussion to illustrate how the factors influence teachers' decisions. The case study examined changes to classroom practice by teachers at a secondary school located in Victoria, Australia that has been given the pseudonym Trimble Secondary College. This study was conducted over 2 years exploring teaching practices at the school and the factors influencing teacher's pedagogical choice. Data was collected through classroom observations, teacher interviews, interviews with the Principal and small group interviews with the students. Collecting data over the 2 years enabled the development of rapport and trust between the researcher and the participants leading to a richer understanding of the school community and classroom pedagogy. The school serviced a small rural community which was experiencing economic and social hardship. These conditions may have contributed to the difficulties at the school where teachers were struggling to engage students in learning and to developing positive classroom environments. To address the problem of student engagement and misbehaviour, they changed from teacher directed pedagogy to student centred pedagogy using cooperative learning as a foundation for building social connections and social capital in the classroom. The cooperative learning was focused on the concept of table groups, where students sat around tables in dedicated groups of four or five. Learning activities were designed to encourage discussion and supporting student understanding through a range of individual, partnered and group activities.

3.1. Influence of professional habitus

Professional habitus is an aspect of our habitus as detailed by Bourdieu, but it is the system of schemas and perceptions people use to understand their professional world. For teachers, these develop through educational experiences, teacher training programs, interaction with colleagues and professional development. As with other aspects of life, teachers participate in professional social spaces, forming social groups around shared understandings and teaching practices, such as being a science teacher or a primary school teacher. These social groups will tend to compete for influence within the social field of the school, exerting their power to have control or influence over decisions. In schools, this may be seen in science teachers lobbying for more resources for their subject in a school, or arguing that science must be taught in a particular way. Such group action reinforces professional habitus as group members confirm each other's schemas and perceptions. This group action will also develop routines, continuing with the science teacher example. The science teachers develop routines of science teaching that promote rationalist thinking and use of the scientific method. As the science teachers

collaborate on the development of curriculum and assessing students learning, routines will strengthen and reinforce professional habitus. To critique established routines becomes challenging as unintended consequences can become hidden in the stability of the practice.

Case snippet

Moving away from teacher directed pedagogy to student centred cooperative learning pedagogy at Trimble Secondary College required teachers to critique their teaching routines that were well established and connected to their professional habitus.

> *I do not expect all the teachers to deal with it the same way I do because I have my style and they have their style, but I would hope that some staff would have a bit more empathy with the kids that cannot read and write and actually see that this kid cannot understand what I am saying and they are going to muck up. Kids will get their notoriety in other ways if they have to. (*Sam, assistant principal*).*

> *There's a few of us that very much stick to the table group system, and there would be others that have their rooms set up in a different way, students not actually in the table groups. So it depends on the teacher and their approach. (*Julie, classroom teacher*).*

Both Sam and Julie articulate how their professional habitus is informing their teaching. Sam draws on his humanist perspective of teaching taking into account students' background when interacting with them. Julie is a supporter of the cooperative learning and the table group approach being promoted by the school. Her work with colleagues and professional learning about cooperative teaching practices has guided her practice, while for other teachers their professional habitus has maintained more traditional teacher centred practices. Both examples highlight how acknowledgement of professional habitus is essential if teachers are going review their practice and select pedagogies that will be the most appropriate for the students they teach.

3.2. Teacher motivation

Schools are social institutions with policies, codes of behaviour both implicit and explicit that guide people's practice. This includes teachers, students, administration staff and parents. External factors such as economic conditions, and education department requirements impinge on peoples' action, as do internal factors such as how parents value education and teachers' professional habitus. These factors interact to create conditions of action, which influence a person's behaviour. How people interpret the conditions will inform their action and for teachers will influence their practice.

Examination and the evaluation of teaching practice require motivation. This impetus can come from both external and internal sources. Significant events such as a change in government policy, decline in student attendance or spiralling student anti-social behaviour are external factors that may compel teachers and school administration to examine classroom pedagogy [8].

Internal factors are drivers that are intrinsic to the teacher. For some, this may come from a drive to develop their personal practice for improved outcomes for all the students in their class. These teachers have become known as reflective practitioners, teachers who monitor

and reflect on student behaviour and progress as an indicator of teaching practice [9]. For other teachers, intrinsic motivation may only occur when they have feelings of disequilibrium, a tension between what is happening in the classroom and their professional habitus [10]. These feelings of disequilibrium may lead the teacher to question their practice, as the events in the classroom have not progressed as normally expected.

Case snippet

The economic and social hardship facing the community Trimble Secondary College served was affecting students and their families. These circumstances flowed into the school with an increase in difficult behaviour and students not valuing education. Teachers were frustrated and looking for ways to improve student behaviour and classroom culture.

> *The kids can be uncooperative; the community has high unemployment, with quite a lot of poverty. Our students have habits of talking a lot of the time interrupting, not focusing, and they don't have those classroom skills. People can get frustrated. But it is getting better, it is about relationship building and teaching these skills, so kids can start learning. (*Markus, campus principal*).*

> *I like to know where the students are at especially in maths. The other day I realised they 'do not know anything about 24 hour time'. So we had to go back over it. There are always things you assume they know that they do not. It is different with every group, you will start with an idea and the kids will take you where you need to go. (*Julie, Year 8 classroom teacher*).*

Teachers' reflection on their students' capacities and understanding the influences on their learning provides insights into why some classroom practices may have been ineffective. Markus identifies that without the skills of active listening, turn taking and working in groups, students were unable to engage in classroom activities. He recognised that teaching personal and social skills required in the classroom must be attended to along with content and concepts. Likewise, Julie acknowledged that students' background knowledge in maths varied and without foundation knowledge, she was unable to introduce more complex ideas to students. Both teachers were motivated to support students' learning and were able to identify external and internal factors that are impinging on their students. This realisation informed their choice of pedagogy and classroom practice.

Whether external or internal or a combination, these factors drive teachers' motivation to ask questions about pedagogical choice. How this review occurs and the response to the questions asked will be influenced by the following three factors of ontological security, routinization and time and space.

3.3. Ontological security

Personal feelings of safety come from a sense of predictability and routine, known as ontological security, where people have an awareness of their personal presence in the world, of being real with a sense of continuity through space and time as one interacts with others in day-to-day activities [11]. Within schools, feelings of ontological security are enhanced by the institutional structures, including timetables, school traditions and rules which provide the school community with high levels of predictability.

Ontological security develops through lived experience as people interact with the world around them. Predictable routines are recognised such as sunrise and sunset, the human response to a smile or the trust a child has in their parents. These routines and responses not only confirm one's own and other people's reality and identity but also provide a capacity to predict the responses of others. It is this ability to predict possible outcomes either tacitly or consciously which manages anxiety. Being able to manage anxiety provides feelings of control and ontological security.

Maintenance of ontological security is one of the motivating forces for abiding by social practices and the reproduction of social structures. Tacitly knowing how people will respond to a particular action builds trust and a sense of safety. Feelings of ontological security govern our sense of control and ability to evaluate potential outcomes of action. Feelings of insecurity come from threats to our identity, or the capacity to cope with the demands life may place upon an individual [12]. It is possible that for many teachers reviewing and exploring different classroom practices is seen as a threat to their professional identity and professional habitus producing high levels of anxiety. This level of anxiety may result in avoidance and a teacher not evaluating their teaching practice. For other teachers with a stronger ontological security may see reviewing teaching practice as an exciting and challenging prospect which will further their understanding [13].

Case snippet

> *It is a real challenge for some people to work with the table groups, having students facing each other and working together. If you don't use cooperative learning, it won't work, and individuals will distract each other. We need it to be a whole school approach, to build a social connection so when a student comes into a class they don't feel alone, 'they have a group to work with'. Some teachers have resisted they, say but 'this works for me so why change'. The professional learning teams are helping with people sharing ideas and successful approaches (Ken, Year 8 classroom teacher).*

As seen in Ken's observation the ability for people to manage anxiety is the key to taking action and is connected to ontological security. Those people with strong levels of ontological security feel less threatened by unknown outcomes of their actions and are more able to take action [14]. In the case of pedagogical choice, taking action involves evaluation of current teaching practices with the aim to develop a pedagogy that will better support student learning. In the case study, the school has established professional learning teams to provide support for the development of teachers' ontological security. Sharing experiences of classroom teaching provides a forum to discuss different approaches. With examples of successful strategies, teachers who feel anxious may be encouraged by the positive outcomes of others to take action.

3.4. Routinization

Routinization is bound with the tacit knowledge that is primarily carried in the practical consciousness and "consists of all things which actors know tacitly about how to 'go on' in the contexts of social life" [15]. People are able to go about their lives without having to closely examine every aspect of life, as tacit understanding from the practical consciousness enables

one to predict the actions of others in various situations. This is in contrast to when people use their discursive consciousness, which is the level of consciousness that deals with new or unusual situations. When drawing on our discursive consciousness we are thinking about the events being experienced and the action we should take. Unlike the action resulting from the practical consciousness we are able to justify and articulate our actions. With both the practical and discursive consciousness, agents are aware of their actions. This is in contrast to the unconscious, which is not easily defined, but can be considered as those aspects that we are unaware and are readily access through the practical consciousness.

Routinization occurs when social routines become imbedded overtime into the practical consciousness and are illustrated by our automatic responses to events such as a greeting or cultural ritual. The predictability of these situations strengthens our feelings of ontological security. Social institutions such as schools have many routines that become routinized, for example, timetabled classes, holiday periods, codes of behaviour and school rules. These routines and norms create high levels predictability and corresponding ontological security to a point where people have a shared tacit knowledge or framework of behaviour. Within schools this framework is robust and fragile, robust due to the reliability of the framework proven over time through teachers' and students' experiences, but fragile when an unexpected reaction occurs creating feelings of anxiety and disequilibrium.

Case snippet

Schools have many routines that can be supportive to student learning as students can predict what lays ahead providing feelings of security. Some routines can also be inhibiting such as inflexible discipline policies that raise students' levels of anxiety or increase levels of conflict.

> *We start the day with homeroom, Miss Lee says good morning and reads the bulletin and then you get into first period. We have her every morning, as she is our homeroom teacher. She knows all of us. Like, she can look at you and read you like a book I reckon; well she can do that with me anyway* (Jessie, Year 7 student*).*

Jessie describes an effective routine of how the school day commences giving the students time to settle and find out about the day ahead. This has also assisted Miss Lee to know her students well. This relationship supports learning as Jessie identifies that Miss Lee can 'read her like a book', being able to determine if she is having difficulty or needs extra help.

Routinization as described enhances the function of the school by supporting the communication and understanding between teachers and students. It can also be inhibiting when routines stop people examining the performance of the school. Teachers may become comfortable with the routines and consciously or unconsciously support ineffective routines as part of their shared framework, rather than evaluate and look at the possible change to teaching practices. With routinization being linked to ontological security awareness of how to support teachers to manage levels of anxiety is important if routines are to be critiqued and when required, changed [16].

3.5. Time and space

Time and space have multiple influences on schools as institutions. Spaces in schools are present in physical, social and communicative forms. Physical spaces are the classrooms, offices, halls, online space and other resources where people can come together. Social spaces are more symbolic and include those connected to peoples' habitus. Communicative spaces can cross the boundaries where people come to share ideas and experiences. These communicative spaces can be selective such as the classroom and the staff room involving particular people or more open such as a community forum where teachers, students, parents and others may come to share ideas.

Time places actions into a temporal context where past actions will influence current settings. Routines become routinized through persistence over time. Time is also a resource in schools with groups competing for time to be allocated to their activities. So time has two influences on pedagogical decisions. First, the length of time current practices has been in place will determine the stability of the practice, and second, more time will be required to critique and change highly stable practices.

To examine and reflect on current routines and pedagogies teachers need 'physical time' away from the demands of classroom teaching to reflect on current teaching practices. Emotional and cognitive space is required to be able to 'step outside' school routines and critically examine the effectiveness of pedagogy being employed. Without both time and space, the tacit knowledge of school structures and routines have the potential to overshadow critical analysis, leaving ineffective pedagogy unidentified and unchanged.

Case snippet

At Trimble Secondary College they recognised the importance of critical reflection. Identifying that the process of review needs both time and a communicative space where teachers can discuss and share ideas.

> *What we really wanted to get going was professional learning teams to build that culture of sharing. On Monday nights we meet in Professional Learning Teams that are a mix of curriculum backgrounds and people focus on pedagogy. They research an approach and trial it in their classroom, like integrated projects or thinking tools. The groups then report back to each other later in the year with examples from their classroom, student's work, and videos of lessons. It is great, and there has been some fantastic work done, with people taking on new ideas because they see that it works. (*Trevor, classroom teacher and program coordinator*).*

This use of meeting time is unusual in Australian schools, with teachers meeting in mixed groups not focusing on subject content or student behaviour, but on pedagogy. The diverse subject backgrounds of teachers bring different teaching knowledge and professional habitus to the team discussion. For example science, English and physical education teachers will have different classroom practices. Sharing these practices provides a starting point for rich discussion about teaching and learning. As Trevor described, the teachers' in their professional learning teams focus on

pedagogy. They choose an approach they have found effective in one situation and research how it might apply to different subject areas. Being provided time and space for these discussions promotes reflection and critique, which encourage teachers to trial different approaches.

4. Supporting teachers to evaluate pedagogy

The discussion so far, supported by the work of Bourdieu and Giddens has identified the stability of classroom practices. Teachers tend to maintain their practice from 1 year to the next and from one class to the next, unaware of the unintended consequences of their actions and institutional routines. Supporting the evaluation of their pedagogy is essential if teachers are to become reflective practitioners.

It is the interaction of the five factors described; habitus, teacher motivation, ontological security, routinization, and time and place that either promote or inhibit teachers' to reflectively evaluate and select approaches that will be most useful for their students. For example, a teacher may be motivated to change teaching practice to more effectively engage his or her students in their learning. However, if the teacher is unaware of routinization or is ontologically insecure, it is unlikely that the changes to pedagogy required will be identified. The capacity of teachers to critically evaluate the pedagogy they use in their classrooms is linked to their knowledgeability.

Giddens suggests that knowledgeability is a person's understanding of the rules and norms that make up social structures. In the case of teachers this will be both the rules and norms of the community and also at a professional level the rules and norms of teaching and the school in which they work. In schools, many of these will be implicit and only understood through experience and interaction with others. A teacher, student or parents' knowledgeability about a school will be their understanding of the conditions in the school and how these influences the way people act. For example, if a school has a long history or being involved in the arts, students' involvement in the annual school drama production is highly valued. Awareness of this school norm would help a new teacher to the school understand the enthusiasm of student participation in the performing arts. In contrast teachers can be puzzled and frustrated due to a lack of knowledge about conditions in the school. For example, if the local community the school serves is experiencing economic and social hardship students may be dealing with many stresses in their home life that is reflected in off task behaviour in the classroom. If teachers are unaware of these situation actions in class that would normally support student engagement may prove ineffective.

It is the difference between what is known and not known that can lead to unintended consequences of action by teachers. Expanding teachers' knowledgeability occurs when a person becomes aware of the conditions that lead to unintended consequences. This means that expanding teachers' knowledgeability has the potential to uncover routines supported by the tacit knowledge that undermined student achievement.

Burridge, Hooley and Neil have proposed that knowledgeability is linked to the concept, 'frames of practice'. These are the approaches and procedures that teachers use to build relationships and a classroom culture [17]. Teachers' frames of practice develop through experience, reflection

and study where novice teachers will have less complex and established frames compared to an experienced teacher. As frames of practice become established and stable they become part of the tacit knowledge of the practical conscious. Experienced teachers will draw on these reflexively to manage their classrooms. This allows the discursive conscious to be attentive to students learning needs and unexpected or unusual happenings in the classroom. As teachers understanding of teaching grows so does the complexity of their frames of practice and with more complex frames, teachers become more competent to deal with new problems or situations. **Figure 1** illustrates this growth of new frames of practice, with more frames being developed and becoming stable in the practical consciousness as the teacher's understanding grows. These new frames are developed through reflection on teaching experience identifying previously unacknowledged conditions that led to unintended consequences of action.

In the centre of **Figure 1** are examples of frames of practice that a teacher may draw on when managing a class. The frames are connected as different frames interacted to inform a
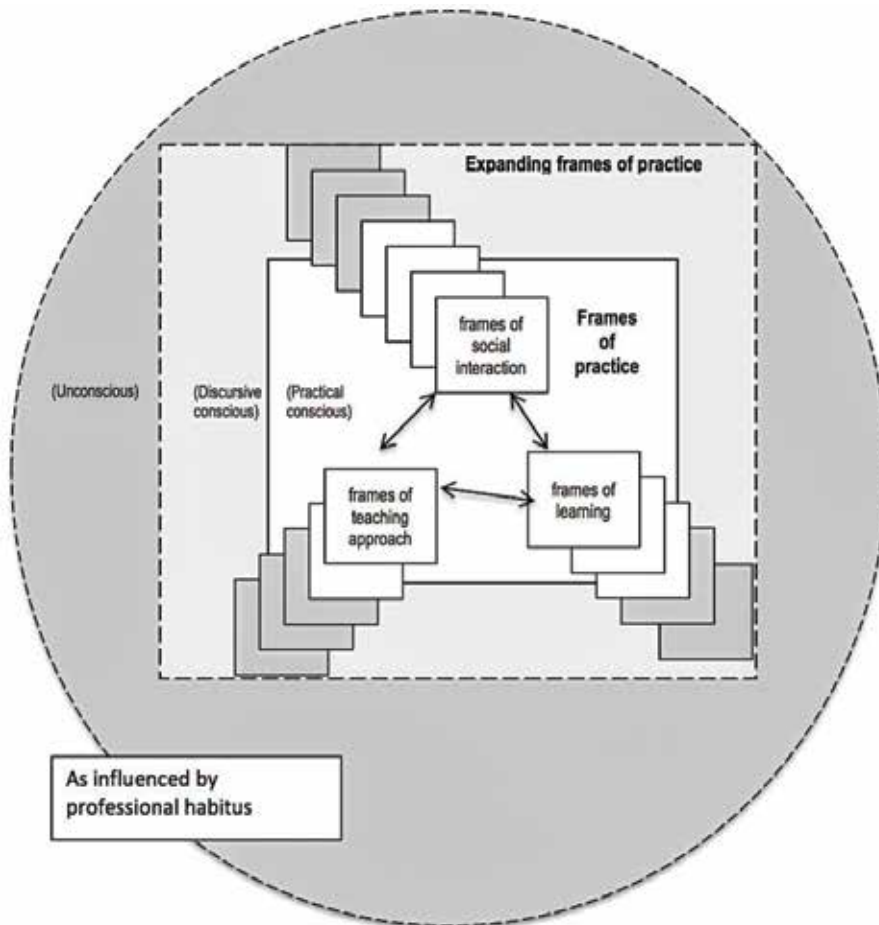

Figure 1. Development of frames of practice.

teacher's action. This occurs reflexively through the practical consciousness. New frames start to develop through the awareness of the discursive consciousness identifying the conditions leading to unintended consequences. This new awareness can lead to new approaches and procedures being used that over time can become stable and added to the established frames within the practical consciousness. In this way teachers build their tacit knowledge of teaching practice, and their capacity to reflexively monitor and manage classrooms.

Problems occur when these established frames of practice are not attending to the needs of students, but the teacher unknowingly relies on this practice. This may come about through a change in circumstances or the influence of professional habitus clouding pedagogic judgement. Whichever the reason, it highlights the need to regularly examine practices to reveal unacknowledged conditions that may be leading to unintended consequences.

Collaborative discussions with peers as illustrated by Trimble Secondary College teachers' professional learning teams are an example of how practices can be examined. When teachers openly reflect on their teaching practices, describing and critiquing specific actions, unacknowledged conditions that lead to unintended consequences can be uncovered.

Case snippet

In Year 8, English classes studying how to write a biography, involved students researching and writing about a famous Australian. The level of student engagement was quite low, with only half the students completing the assignment. Although the approach was ineffective it had been the standard approach for years. Through discussions with colleagues, the teachers reviewed their practice and came to the conclusion that stories of famous Australians did not connect with the students' lives and their local community. This observation led to a change of approach by asking students to write a biography about a significant adult in their lives, which they would then present to family and community members.

> They learnt about skinny and fat questions and eventually, they had to find someone to interview and taped their interview and wrote their books. Then we had a night where they could bring their families and the person that they wrote about to a presentation night. The books were great, and I was really proud of them (the students). The kids had to get up in front of everyone. We had about 70 people at each night which is a better proportion than parent teacher interview nights, because their kid was going to present something. (Tony year 7 teacher).

Connecting the curriculum directly to students lives combined with the authentic assessment of presenting the biography to an audience required a change in pedagogy. This only occurred when teachers identified the unacknowledged conditions of action of an assessment task that lack relevance to the students. The change to the task then altered the skills being taught and the pedagogy being used with a corresponding change in student engagement and learning.

For discussions such as the one described, that critiqued teaching practice, to occur, a trust environment must be present. Habermas' refers to this environment of trust as the 'public sphere' [18]. Within the public sphere, all opinions are given equal merit, and the discussion is an inclusive process with the goal of purposeful action that Habermas identifies as communicative action [19]. In communicative action participants are not primarily oriented to their own individual successes; they pursue their individual goals under the condition that they

can harmonise their plans of action on the basis of a common situation and definitions [20]. In essence, the focus of communicative action is towards understanding, learning and enlightenment [21]. Strategic action, in contrast, is where a group is focused on a predetermine outcome that maintains their position or power with in a setting. Such action will undermine the focus on understanding and whether done openly or covertly, will compromise the reflectively discursive process, summarised in **Figure 2**.

The interaction of the elements identified in this process supports teachers to take purposeful action. Development of public sphere for reflective discussions is the essential factor for the process to occur. Without open conversations about teaching practice unacknowledged conditions that lead to unintended consequences will not be identified and effective change to pedagogy unlikely.
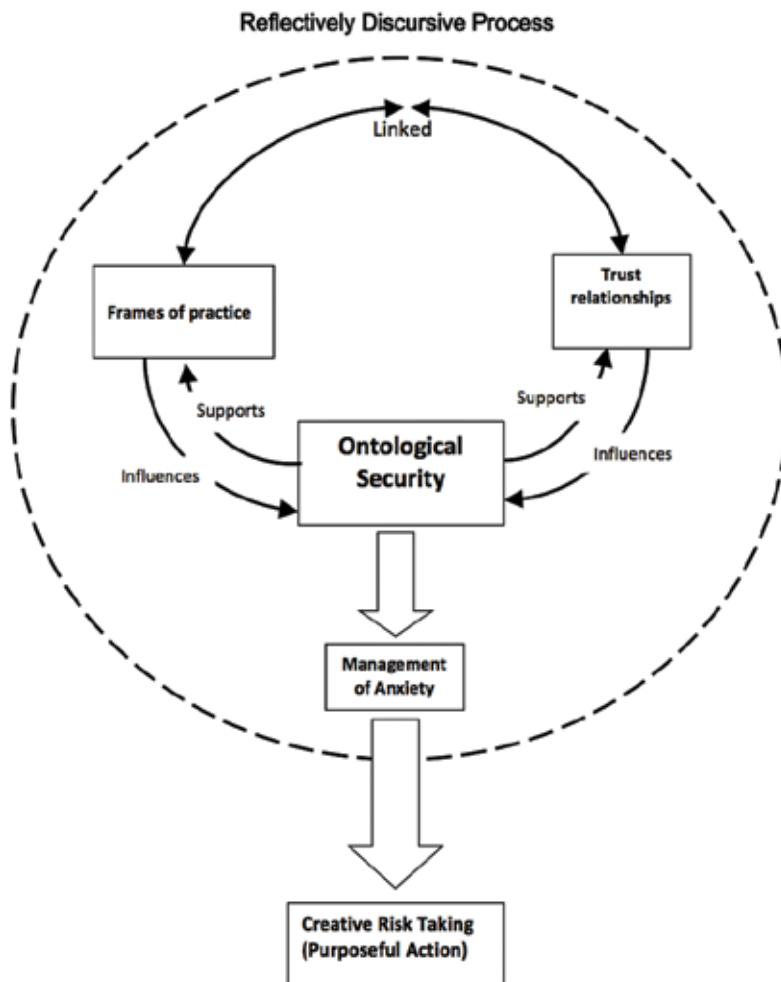

Figure 2. The reflective discursive process.

The public sphere and development of trust will require an acknowledgement of different professional habitus and frames of practice. Supporting teachers to share their perspectives on teaching and learning will lead to richer reflective discussions uncovering the unintended consequences of practice, with an expansion of knowledgeability and frames of practice. This deeper understanding of teaching leads to more complex frames of practice that strengthens ontological security. The strength comes from teachers being able to manage anxiety, as anxiety is linked to the unknown outcome of choice [9]. Where there is a choice there is always the risk of choosing a course of action that will not result in the desired outcome. With more complex frames of practice, teachers are more able to see the range of possible outcomes, with an associated confidence in choosing a positive course of action.

Even with a more sophisticated understanding of teaching practice and awareness of possible outcomes, change will only occur when teachers take action. This may seem obvious, but routinization, a desire to maintain ontological security and the influence of professional habitus supporting personal identity can be significant barriers to change. As discussed, the rules and norms of social structures although created by people also influence people's actions. In schools, as with all social structures, norms and rules exist because teachers have maintained the practices over time. This duality is the both a strength of social structures and a weakness. It is strong through providing a sense of security and weak when ineffective practices are perpetuated.

Because of the duality within social structures it is difficult for the action of one person to have an effect on the institution's structures or practices. Social structures develop through people reproducing the practice over time, leading to routinization. If the actions of many people are required to reproduce the practices the action of one person can be easily absorbed without a change to structures or practices.

This is seen in schools where ontologically secure teachers may transform the learning of the students in their classrooms, but other classrooms remain unaffected. For ontological secure teachers to have an effect on the structure of schools, they must assemble the social and cultural capital required for other teachers to view their actions as legitimate. If the actions are seen as legitimate, there is a greater likelihood of widespread change, but this will not occur without teachers involved in the process developing the levels of ontological security required to take creative risks for change.

Case snippet

> *No, personally I thought people wouldn't be game enough to make the change, it doesn't sound like a big change, but for a secondary school it was… (*Trevor, classroom teacher and program coordinator*).*

> *Mind you, the way we were operating at one stage here, on this campus; you probably wouldn't have wanted your kid to come to the school…Things have changed that much…if the kids have a disagreement, you can sort things out as people rather than just power. (*Ken, Year 8 classroom teacher*).*

> *To change every classroom, every teacher had to accept it; it was no good if one person didn't, every classroom had to teach in that way. We knew that it meant a change in pedagogy… I really thought people would say, "no, this is too big", some said that, others were nervous but we went ahead anyway, and it's the best thing we ever did.*

> *There was no one particular person leading it and that was the other powerful thing. It was like a team. There was Jimmy Hills and myself and another couple pretty interested in this idea, but no one was really running it. Each week we would come along discuss and report back and it gathered its own momentum. (*Trevor, classroom teacher and program coordinator*).*

Ken and Trevor's comments highlight the stability of schools and the difficulty of change. Ken described the student behaviour and the difficulties at the school as serious that provided a strong motivation for change. Even in this situation, teachers were hesitant with fear of the unknown, high levels of anxiety were present that the situation might become more difficult. Trevor's reflections on moving to the table group approach in classrooms and cooperative learning was a significant change for teachers. It challenged not only the current structures of the school, but also the teachers' ontological security and professional habitus.

A number of ontologically secure teachers led discussions about pedagogy that was the catalyst to reflect on current practices. The teachers came together to discuss approaches with all opinions being valued. It was this reflection in the trust environment of the public sphere that led to an expansion of teachers understanding and frames of practice. Only then were teachers able to take creative risks and implement cooperative learning pedagogy.

Such action highlights the teacher as the agent of pedagogical change, and it is the teachers' ability to, "rethink their social relationships and pedagogical practices within and outside of school…questioning and shedding previously cherished values and beliefs" [22], which provides the conditions to change pedagogy. It is this type of critical questioning that occurs through reflectively discursive activities which expand teacher frames of practice, developing the ontological security required for teachers to take purposeful action around pedagogy.

5. Conclusion

Teachers make a difference to student learning when they choose pedagogies that meet the needs of the students they teach. Indications that these choices have been effective will be seen in the students' level of engagement with the learning activities, development of the students understanding of the concepts taught and their ability to apply these concepts to settings beyond the classroom. However, too often teachers become reliant on routine and are drawn into a reproduction of teaching practice rather than an evolution of their teaching practice that is responsive to the students being taught [9].

To support teachers in making pedagogic decisions that are appropriate for their students, a number of conditions need to be met. First, space and time are required. Space refers to a cognitive environment different to the norms of their practice. Gathering together people from across teaching disciplines provides such an environment, as teachers from different subject areas bring a range of perspectives to evaluate pedagogies being used.

Time is needed for the development of trust which results in deeper reflective discussions. In the trust environment of the public sphere, all opinions are given equal merit and the critique

of practice is focused on achieving a more complex understanding of student learning. For many groups of teachers this will take time and will require teachers to meet regularly in multi-discipline groups to discuss teaching practice and their pedagogical choices. As trust develops teachers will be able to openly acknowledge their professional habitus, with collaborative discussions leading to the identification of unintended consequences of their current practices leading to an expansion of their knowledgeability.

With an expansion of knowledgeability comes an increase in teachers frames of practice and more complex understanding of the school community, students and their learning. This deeper understanding of the school context and students learning can identify changes that need to be made to pedagogy. Determining the need for change is only the beginning. Taking action requires teachers to have levels of ontological security that enables them to overcome routinization to enact the change. Teachers who are ontologically secure are more able to manage anxiety enabling them to move out of the social field of professional habitus and the established routines of practices and to take purposeful action to modify or discard teaching practices identified as not supporting student learning, demonstrating reflexivity.

It appears that professional habitus and ontological security are very strong influences on pedagogical choice, with both elements supported by the established routines of secondary school structures. With Giddens' theory of structuration highlighting the duality of structure and Bourdieu's theories of social and cultural practices emphasising the importance and influence of social identity, changes to pedagogy will not involve a simple intervention from education departments or direction from school principals. To sustain pedagogical change within secondary school classrooms, the issue of teacher ontological security and the influence of professional habitus must be addressed. This requires a change to the power relationships within schools to enable teachers to participate in interdisciplinary reflectively discursive inquiries, where the school principal and administration support the deliberations. This requirement is in contrast to the current neo-liberal approach to government and the economy which has driven the commodification and marketization of education. Education departments and school principals must move away from developing a culture of performativity which privileges academic test scores to a culture which promotes teacher collaboration through the goal of nurturing and developing young people to become engaged members of society.

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Large Courses at Universities: Criteria for Teacher Action

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Additional information is available at the end of the chapter

Abstract

Large courses represent the vast majority of learning activities in higher education institutions around the world, where classrooms are crowded with students and teachers make their best efforts trying to accomplish the learning objectives. This educational context, along with the increased access to higher education in the past decade, has generated demands on the teaching-learning process. Consequently, research in the topic is needed to elucidate guidelines to improve university instruction. Recent initial findings of the research project "What do the best university teachers do in large courses? A multi-case study" report five crucial aspects to consider when planning a successful large group activity: student-teacher interaction, active learning strategies, classroom management, students' motivation and commitment, and effective use of technology. Also, it has been concluded that there are five criteria that the best university teachers frequently use in their classes: ubiquitous interaction between student-teacher-student, the dynamic decision-making based on student learning achievement, use of examples originated from reality, promotion in the generation of networks of collaboration, and promotion of participation of students during class. To overcome the challenge of large courses, future research and innovations in large learning activities should be undertaken to evaluate their impact on students' learning.

Keywords: large course, university, higher education, teacher action, effectiveness, learning

1. Introduction

In recent decades, the number of students in higher education has increased significantly worldwide, especially in developing regions like Latin America and the Caribbean, where enrollment in tertiary education has increased from 2230 per 100,000 population in the year

2000 to 3428 in 2013, representing an approximate 50% increment [1]. This expansion in university access has generated new demands on the teaching-learning process, such as:

- Better and bigger infrastructure

- Access to resources for learning

- Having up-to-date training curricula relevant to social and employment demands

- A better link with the environment, with a special focus on the two-way mutual benefits and the common good of society

- Institutional commitment on the effectiveness of the training processes, manifested—among other elements—in the development of generic and specific competences of the discipline or profession in most of the students

- Access to fair and equitable funding mechanisms for higher education not always covered at the government level

- Having qualified teachers, not only at the level of the discipline or the research but also with pedagogical skills capable of provoking quality learning in the students, and university managers with higher levels of expertise and efficiency in the tasks entrusted, among other requirements

The greater number of students per class is a relevant challenge not only at the methodological level [2–4] but also relates to the economic sustainability of educational projects and to having a sufficient number of teachers to adequately serve the student population [5]. Therefore, this subject is a great opportunity to produce evidence and try to rethink the large courses that are present in almost all disciplines and institutions in the world.

Courses with large numbers of students attending all together in large auditoriums are indeed a widely known format in higher education, but when is it a course considered to be large? Some authors label courses as large when there are between 300 and 1000 students [6, 7]. For others, however, it is not about the number of students, but about the teacher's inability to make prolonged eye contact with their students over a standard 50-minute period [8]. This last definition is the one we will use throughout this chapter to refer to a large course.

Although the theme of larger classes is not new in the literature, the subject has been involved in constant controversies, especially those related to their relevance and effectiveness on student learning [9]. This criticism was generally concentrated before the emergence of technology and the Internet—especially mobile—in the daily lives of people, around the year 2010 [10]. Recently, the challenge of developing students' competencies has put the issue back on the table. However, recent educational research has undergone a change of axis in relation to the assessment, viability, and effectiveness of teachers in large courses [11]. This is due to fundamental elements. On the one hand, due to the irruption of the Internet in the day-to-day and in the training environment, mobile devices and applications are part of the teaching action, thanks to its coverage, accessibility, and simplicity in its implementation [12]. On the other hand, due to a greater appreciation of teaching and the need to improve its effectiveness on the vast majority of students.

In this context, this chapter offers a systematization of available evidence on the subject and the initial findings of the research project entitled "What do the best university teachers do in large courses? A multi-case study" sponsored by the Chilean National Fund for Scientific and Technological Development (FONDECYT). The objective of this 3-year project is the inquiry into teaching practices and their implications in the teaching and learning processes of those teachers recognized for their excellence in large courses throughout the country. Also, the advances related to the identification of those possible criteria for action for the teaching practice would facilitate the effectiveness of large courses, conclusions, and final reflections.

2. Conceptual framework

The previous research has shown five crucial aspects to consider when planning successful large group learning activities [11], which have been related to positive learning outcomes. In a didactic way, they have been divided in order to assure better comprehension, but it is important to point out that they are intrinsically related. he factors identified are student-teacher and student-student interaction, implementation of active learning strategies, classroom management, students' motivation and commitment, and the effective use of information and communications technology (ICTs).

2.1. Student-teacher and student-student interaction

One of the main disadvantages that strike when thinking about large group activities is the apparent loss of the one-to-one interaction between teachers and students. This situation is particularly relevant when giving feedback to students, which could affect the perception about the effectiveness of the educational process. However, despite the fact that personalized feedback might seem extremely difficult to accomplish, there is another way to preserve an appropriate communication between students and teachers, which is through frequent formative assessments that allow the educator to evaluate student's learning [13]. In this sense, the teacher gets a general approach about the student's strength and difficulties regarding the learning process, in a more effective and efficient way than the traditional approach centered in answering particular questions at the end of the class [14], enhancing the communication and interactions between the educator and its class. The interaction between students should be understood as a creative instance [15] that boosts the learning experience empowering them in the process of knowledge acquisition. In the same vein, technology allows easier interactions between students via communities of learners [16], safe spaces for discussion, and support between peers [17]. This is relevant since the involvement of the students in their own educational process has been related with an increase in motivation and engagement that has a positive impact in the large lecture theater [18].

2.2. Active learning

Traditional lectures are often a passive experience for students; on the contrary, methods that promote active participation of students are known to boost the learning process [19]. Active learning has been defined from different perspectives and areas of knowledge [20]. However, beyond the particularities and differences among each approach, there is a consensus to

understand active learning as a process that occurs when students manage to perform tasks and activities immersed in a system of knowledge and think toward their learning process [19]. Examples of these active methods are peer-assisted learning [21–23], formal and informal group learning [24–28], and the assessment, evaluation, and feedback between blind peers [29, 30]. These should be considered to make a positive impact on student's learning outcomes.

2.3. Classroom management

Considering the fact that there is a tendency toward a greater amount of chaos in a large group of activities, administration and management issues should be of special relevance. In this sense, there should be a planning process of the activities before, during, and after the class [31], designing and communicating the activities in a way that all the educators involved have clarity on the process methodology.

Special consideration should be given to the following aspects: recommended lectures, the use of ICTs as learning strategies, the promotion and engaging of student's autonomous motivation, and strategies that advocate toward the maintenance of appropriate student behavior during class [32]. Finally, the evaluation of the educational process comes in two ways: the first one tallies to the direct feedback obtained by students, which is important as it reveals their own perception of the learning process, and, second, the evaluation of the accomplished learning outcomes, which should reveal in the most objective possible way the level of success and progress of the class in terms of the acquisition of intended learning outcomes at the end of the teaching-learning experience.

2.4. Students' motivation and commitment

The concept of motivation has been related not only to behavioral outcomes such as student's successful academic performance in learning a subject but also to affective and cognitive educational outcomes [33]. Motivation, however, as postulated by the self-determination theory of motivation [34], is not a unitary concept and has been differentiated in two main quality types. Autonomous motivation, on the one hand, refers to one's intention to do something appealed by personal satisfaction obtained from the activity, or because of the relevance attributed to a particular activity, without external or internal pressures. In this sense when identifying an activity's value, it is more likely to experience willingness toward it. On the other hand, controlled motivation is understood as an external force that drives an individual toward an action whose ultimate purpose is to avoid punishment or obtain a specific reward from the process [33, 34]. Given the above, educators should encourage autonomous motivation in their students, and align student's expectations with the intended learning outcomes of the class, since they will be more motivated if they feel their teacher's care about their own expectations toward their learning process. In this sense, promoting autonomous motivation would make a consistently positive impact on student's learning outcomes despite the number of students [35].

2.5. The effective use of information and communications technology

The use of effective online teaching resources, meaning ICTs, has been facilitated to overcome the intrinsic challenges of large group activities, thus making the large class format more efficient and important for learners [6]. Salmon [36] mentions four benefits contributed by online educational resources:

1. To provide active educational experiences for all students enhancing the participation of the class

2. An opportunity toward self-paced learning

3. Access to resources without any time or geographical limitations [36]

4. To increase interaction among students through subgrouping and collaborative learning [37, 38]

These aspects not only endeavors reflection, sense of community, and collaboration [39] but also stands for a level of respect toward the individuality of each student's particular learning process and learning abilities, connecting the educators with the diversity contemplated in their class, favoring an integrative classroom environment.

The previous five factors are intrinsically related; hence, they should be always considered in the planification and design of large group activities in order to obtain better learning outcomes. As an example of these, ICTs should be considered as useful tools when designing active learning strategies, as they open possibilities toward integration of a wider range of learning methods, more suitable for the diversity of students found in massive classes. In this sense, to allow a spectrum of learning possibilities stands for a highly appreciated value among students, which is the knowledge educators have about the human component of their classes, who are they, what is the specific cultural and socioeconomic background, how heterogeneous the group is, what are their particular strengths and difficulties when facing a new educational challenge, what they hope to accomplish taking that class, and what are their motivations and aspirations toward the future. The previous shows interest and commitment from the educator toward their students, boosting student-teacher interactions as it shifts from being distant and vertical in the anonymity of a massive group activity toward a more personal level, where the students feel heard in a context of integration of their differences, advocating for students' motivation and commitment. This sounds like a task highly ambitious and almost impossible to accomplish, which is why classroom management plays a crucial role, as it is extremely difficult to get to know each student and assure their active participation in the class without a well-designed strategy. The use of ICTs appears here again playing an essential role allowing organization of students in smaller groups according to their particular interests, enabling feedback before, during, and after the class, and monitorization of the level of interest and participation. To sum up, after analyzing each of the five described components, it is possible to state that they cannot be isolated as separate strategies, as they are related in a way that makes it hard to think about one of them without considering the others.

3. Criteria for action in large courses

Between April 2016 and July 2017, 15 universities throughout Chile were contacted to participate in the study, identifying and convening the best teachers of each institution. Each university selected their representing teachers using two key criteria. The first criterion is that teachers had the recognition of quality and excellence in teaching through different mechanisms, such as the evaluation of students, recognition among peers, and awards given to the best teachers at the institutional level. The second criterion of selection was related to the number of students in the course and the teacher or teaching team. In this sense, it was considered

as selection criteria that the number of students per teacher doubled the overall average of the institution. This last criterion was adopted in this way, because the available evidence is not conclusive about what "large courses" mean, ranging from 50 to 1000 students, or under the criteria of "low visual contact" between the teacher and the students [10].

Under these criteria, 32 teachers were identified who taught classes in large courses comprising between 62 and 246 students. Interviews were scheduled, informed consent validated by the faculty ethics committee, and interviews conducted according to the predefined protocol for this purpose. Interviews were recorded in audio files, and field notes were generated. Then, each interview and field notes were analyzed and codified, identifying and relating effective self-reported teaching practices, using the ATLAS.ti® software. Then, codes were integrated and optimized, generating five large groups of codes. Finally, a process of conceptualization or theorization of the categories with greater concurrence began.

The qualitative methodology described above [40–42] allowed the identification of the five criteria that teachers frequently use—consciously or unconsciously—within their teaching practice in large university courses. The criteria identified in their totality are methodological/pedagogical and are presented from the highest degree of concurrence (22) to the minor (8). Each of the criteria was then reviewed and conceptualized.

3.1. The ubiquitous interaction between student-teacher-student propitiates a better environment for learning

Communication seems to be a relevant factor in the learning experience of large courses. This communication, however, has a particularity. It is present at all times, everywhere and in various formats or devices. Teachers use various ways to be "always connected" with their students. In other words, it is to offer an "always available" training experience through various media and formats, beyond the formal classroom spaces. Some representative quotes were "…*I have a special mobile phone for my courses. There, I set up a Whatsapp®-volunteer group with my students from the beginning of the course. They ask me questions and I respond at any time of the day, wherever I am*"; "*Since I discovered Facebook® a few years ago, I set up a closed group where my students participate in a very natural way. It was a good experience. It is relevant to observe how students interact, often responding to their doubts among themselves*"; and "…*in my strategic communication course, I use a lot Twitter®, because it allows me to exemplify with everyday cases the contents of the course…the students participate by commenting, allowing me to make corrections about certain errors that they may be making in their analyses*".

The use of communication technologies and social networks seems to be a great strategy to improve the interaction between teachers and their students. In this sense, the use of social media or Web 2.0 has become an interesting resource for student learning.

3.2. Dynamic decision-making based on student learning achievement throughout the process should be the north in classroom management

Size is not a sufficient justification for teachers to not orient their practice toward student learning outcomes. Most interviewees stated that they take short- and long-term measures when they do not achieve the syllabus objectives or in a particular activity or generation of evidence. In a way they empathize and take responsibility for the results that their students achieve, but above all, they manage to reorient their actions. In this context, the processes of feedback and

monitoring that teachers develop in different modalities and situations, ranging from the use of clickers through one-minute papers to brief quizzes, are key actions. Some representative quotes were "…*I am permanently concerned about student learning. I ask them a lot in class. And when I see what they are not understanding, I change the teaching strategy…*"; "…*in all classes I try to use clickers or brief questions … with these results, I start the next class. When I realize that the answers are not what I expect, I modify the class to try to get my students to learn*"; "*With the results of the partial assessments, I have sometimes had to adjust the syllabus…it is essential that my students learn*"; "*For several years until now I have been trying to invest more time on the essentials of the course content, to generate spaces of time to reinforce what students cannot learn…*"; and "*After I finish each class, I send a small online survey with the topics that were reviewed. I ask them two things: what you learned most strongly and what you have the most doubts…at the beginning of each class, I start with a brief synthesis with those weakest elements detected…when problems persists, I organize an activity especially to strengthen those points…*".

Not all the teaching work will be determined from the beginning; probably during the development of the course, adjustments must be made from the feedback received by the students. This aspect should always be considered within the administration of any class.

3.3. The use of examples or analogies originated from reality is able to link cognitively and emotionally more effectively

Not always the topics of the course are liked by all students, especially in areas that may be more abstract and less motivating. A relevant fact is how teachers select and use examples and situations of contingency in order to promote motivation, linkage, and meaningfulness with the content or learning that is being intended in students. The above not only at an intellectual level but also at an emotional or empathic level with the situation being exemplified and its intrinsic link with learning. Some representative quotes were "…*in the day-to-day I am always looking for examples to use in my course. For me it is key to choose good examples not only able to cover the content that I am delivering, but also to engage students to learn*"; "*Students respond not just because they want to learn. They need to know how knowledge can be used in everyday life…*"; "*My students are not alien to reality and to the contingency…of what is happening around them. In one way or another, it affects their lives…so choosing good examples of reality will help them understand their environment and make learning meaningful…*"; "*When I start the course I realize that students are not able to relate contents to reality…it is as if they lived in parallel realities. When I gradually explain using everyday examples, they discover a new world and commit to the course. Hence, the importance I give in selecting good examples…*"; and "*Several years ago, in the evaluations that I applied in the course, rather than asking the students to answer questions, I gave them topics that they should exemplify, relate and analyze with facts of national and international contingency…it has given me very good results…*".

This represents better communication skills not only over the average of teachers but also in the effective and relevant selection of examples capable of linking students' motivation with the contents and learning of the course.

3.4. Promotion in the generation of networks of support and collaboration intra- and extracurricular (both between students and teachers) favors the quality of learning

Teachers use the positive effect of collaborative networks, both in and out of the course. Within the course, there are multiple actions, but some stand out, such as peer instruction, collaborative

work, and projects, among other initiatives. In the case of courses that have more than one teacher, they generate actions of reciprocal collaboration with students in smaller groups, especially in learning experiences where they demand the resolution of professional challenges. Outside the course, teachers commonly promote collaboration with former students of the course or simple contact with professionals of the same or other disciplines, with the purpose of broadening the look beyond the course and the generation of networks that facilitate the initial labor insertion. Some representative quotes were "*The work done by the students through collaboration, both inside and outside the classroom, has been vital … I notice it when interacting in the social media of the course and when jointly solving the work that I request. I usually organize groups randomly and reconfigure them two or three times during the course. This way I assure they generate networks, collaborate and are able to cope with the course…*"; "*My class is in a large auditorium…and although it seems difficult, what I do most is instruction between peers. Even on some occasions, I have placed themselves in different positions inside the auditorium so that they rotate the work-groups … I see how students' motivation, engagement and achievement increases…*"; "*…at the end of each topic, I ask students to interview professionals from their own discipline to compare the contents of the course and to generate professional links that promote under-standing of how to insert themselves in the professional context…this helps the students to be responsible with their own learning and collect experiences or situations to be shared during the class*"; and "*When my students understand and realize that we are a learning community during the course, there are really significant changes in their performance…it is interesting to see how their behavior changes and how they take more responsibility for learning, especially in moments that I make them interact with key stakeholders outside the course…*".

As part of any course, the interaction between students, through various methodologies or extracurricular activities, must be planned and strengthened, in order to positively impact their learning.

3.5. Promotion of permanent cognitive participation of students during class improves achievement in learning

Beyond the course size, these teachers permanently ask their students' involvement and not just to attend as passive listeners. Usually, they ask students small but permanent actions that imply them to respond, think, propose, or elaborate, which is manifested in some type of evidence or learning product. These actions are permanently generated within the same class session and throughout the period in which the course is dictated. This is based on the perception of these teachers in maintaining students' attention as long as possible, which leads to better results. Some representative quotes were "*…or via clickers or One Minute Paper session-by-session, I have my students constantly mobilizing what we review in class, otherwise, what purpose has that they just sit and listen?…*"; "*In several sessions I use Flipped Classroom. Therefore, they already know that they must come to classes to apply or to solve exercises that will be part of their assessment. Many times I also do it to integrate several contents. The idea is that they are in constantly aware and attentive to learn…*"; and "*The traditional idea of going to class to sit and listen simply does not respond to the current needs in the development of skills. By having a large group of courses, I want to involve the vast majority of students, and not everyone can speak at the same time. That's why I integrate activities where they have to connect with what I expose in classes…*".

Active learning must be one of the central pillars in class planning in large courses. To make learning happen, the student must do more than just listen to the teacher.

4. Conclusions

All the criteria that have been identified in this chapter are possible to apply in small courses and are not exclusive to large group activities. So, what must be especially considered in classes where the size becomes more of a problem than a challenge to be faced?

It seems to us that the relevance lies in when, where, and how the teaching and learning process is implemented and managed. Consequently, the problem is not in size, but in the choice of strategies to use and how they are managed in the classroom to raise the quality of learning in the vast majority of students.

Another issue to be considered is related to the use of technologies and its usefulness to tackle large courses. Above all, the use of everyday applications or those easy to access—such as social media—can cause significant differences when developing environments that promote effective learning. It should be noted that technologies do not solve all the challenges that come with large courses, but they manage to solve a significant group of them, such as interaction, communication, and individual monitoring that can be developed with these tools.

5. Final thoughts

First, it should be remembered that large courses are common in institutions of higher education. Therefore, before continuing to renege on the disadvantages and drawbacks of this reality, it is necessary to innovate on how it is possible to better assume this challenge.

However, the role of educational research is vital, especially in the understanding of how to make these kinds of classes more effective, considering the current and future cultural characteristics of students who will enter higher education. Increasingly, the demands for quality education and teaching encourage us to have better and greater tools to meet this challenge.

Finally, it is the task of the whole university community to face the challenge of making the classroom, the teaching, and the learning processes of the twenty-first century more meaningful in higher education. The problem is not the size of classes, but how we are supporting the current and future generation of students who attend our universities for a training that effectively prepares them to face their professional future and the challenges of society.

Acknowledgements

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Education in Confessional Schools According to the Speech of his Students

Diana Marcela Pedraza Díaz

Additional information is available at the end of the chapter

Abstract

This article comes from the research project "Representations of formal and private education in students of Catholic schools in the metropolitan area." The research analyzed a series of oral speeches, about education in the Catholic school, in students who have been educated for over 9 years in these institutions. The analysis identified representations that young people had built with their learning environment and the values that revolve around his education in schools guided by principles of a religion. A qualitative method was used with ethnographic-semiotic approach that guided the collection of oral statements, through semi-structured interviews and focus groups, analyzed from theories and methods of the pedagogy and semiotics. Thus, an approach was made to the constituent elements (values) of educational practices one of the many training projects and certainly the oldest counts in Latin America in general. It was possible to find answers about the valuation of these phenomena, showing a dichotomy between educating "a good person" to the confessional way and educating a citizen. With these results, it aims to promote reflection about the educational phenomenon from the perspective of the learner, while the theoretical and practical relationship between pedagogy and semiotics is strengthened.

Keywords: training, axiology, culture, lifestyles, Catholic education

1. Introduction

The present article analyzes some axiologies on the formal education and the school that the students of Catholic schools in the metropolitan area of Bucaramanga (Colombia) show their imaginary, through oral discourses. This imaginary was constructed from the personal experience that the subjects have had in private confessional institutions, in which they have spent almost all their school life. Hence, the recognition of this value load in the directors involved

in this educational process, students, starts from a symbolic universe acquired in the world of the life of these centers of formation. This symbolic universe is a set of schemes of interpretation and meaning that are socially institutionalized and recognized by each participant; to be internalized determines the visions of the world of each social subject, their orientation in the context, and finally condition of their actions in everyday life.

In order to arrive at the identification of the axiology that orient and enrich the world of senses of the students in the confessional formation, the investigation started with discursive data provided by youths of the 9th and 11th grade, during the year 2014. The students belonged to three schools who share the Catholic faith but who belong to different orders or congregations. The oral discourses were obtained from the use of an ethnographic methodology for the collection of statements. The research used semi-structured interview techniques and focus groups. The choice of these techniques was based on the principle that say oral discourses obtained with this process, without doubt, manifest forms of life and systems of values of the participants. Also, it shows a series of sanctions one-self and others that let evaluating inter-subjective relations they have with others and with the environment. These were built during a period that ranges from 4 to 12 years of experience in these educational institutions by the case of the informants. The subsequent analysis of this data started from theories and pedagogical proposals from different authors such as Mélich in his book "Del extraño al cómplice" [1], Botero with his work "La formación de valores en la historia de la educación colombiana" [2] and semiotic proposals that involve education like as is the case of Cárdenas in "Hacia una semiótica de la educación" [3], Hamón in "Texto e ideología: para una poética de la norma" [4], and Bourdieu with "Cultural capital, school and social space" [5].

The analysis of the information collected led to the recognition of a series of recurrences about the concepts of formal education and Catholic school. That allowed the researcher to identify a series of axiologies present in the formation of these young people and undoubtedly it is influencing their being, thinking, feelings, their coexistence and even their actions inside and outside the educational classrooms. In other words, this is a guide of this religious model. The general result generated a comprehensive report that touches on several constituent points of the field of education and of the senses that the young are building around current educational actions in specific groups in charge of training in a small territory of Colombia, as it is Bucaramanga. The resulted topics analyzed the concept of teaching, acquired skills, objectives, and identity in the process of learning and teaching in these institutions; their teachers and the pedagogical discourses that they used to guide their practices; and the educational institution, its methods, and curricular and extracurricular actions up to the impact of the training on the life of the interviewees. With the above, it was possible to constitute a general and reflective view of the theory about the circulation of meanings that converges in some axiologies proper to an educational model that in Colombia is generating tensions between public education and private education, secular education in comparison with the religious education, and dynamics for the construction of an identity as learners that belong to a culture loaded with sacred ideology.

The research proposes that the results of the analysis of religious educational practices, shared in this chapter, be looked at starting from an effort to construct a general theory of the ways of

teaching and learning today, in which the diversity of concrete cases is assumed as a system of educational alternatives and not as a paradigm that excludes "the educational" from "the noneducational," because in reality, all the training paths, such as the one studied here, are part of the educational in the country, in the pedagogical history of a community, with all its differences and particularities.

2. Approach to the concept of axiology

From different disciplines, the term axiology with the constant convergent around a theory of the systems of moral, logical, and esthetic values has been considered. Therefore, we will not try to retake a reflection around research, studies, current state, or main exponents from the various areas that contribute to the concept; we will return only the relation of the term in the semiotic perspective since it was the basis for the analysis of the discourse of the students. In this way, we must start with the Greimasian conception of the Paris School which rises "the name of axiology to the paradigmatic mode of existence of values … it can be considered that every semantic category is susceptible to be axiologized, due to the thymic category euphoria/dysphoria" [6].

From the above, it can be affirmed that all discourse presents a series of modalizations that contain information about the subject that is enunciating and of the subjects that are enunciated; that is to say, they allow glimpsing what the subject thinks and believes, the judgments of value, and the values that guide their being, doing, thinking, and feeling. These structures comprise systems of values belonging to deep levels of analysis in the semiotics; these are the main constituents of the ideologies and consequently of the stereotypes assumed by different social, religious, or cultural groups. So, it is suggested that "once someone assumes an option on the valuation of a semantic content (a term, such as: life, death, masculine, feminine, wealth, poverty, etc.), have an axiological structure to an ideological structure" [7]. These positions are those that the student formed in the confessional way allows seeing in his discourse around the education that receives and that is the object was the object of study of this investigation.

3. Catholic formal education in Colombia as a text that activates the cultural and social life of our country

Education in Colombia is a cultural phenomenon that has several conceptions, due to the institutional autonomy established by the Colombian educational law. Therefore, the country has to be particular in individual education processes to train young people in each school at the national level. In other words, individual school has a curriculum that meets the basic minimum required by law, but the entire educational project is aimed at a particular mission and vision of the institution. An example of the above is the student profile; each school has its own different profile. However, these autonomous educational practices aim to converge on a cultural community project established in the general law of education of 1994 [8]. This cultural project in terms of semiotics could be considered as elements that correspond to the

forms of life [9]. Thus, the country, by law would expect an education of citizens with high level of culture, respect for the other, and a person near to science and technology, among other points referred to by degree. Consequently, this should be the guiding thread in each institution and the way of life promoted by the legislation, a series of strategies that would influence all the practices of a social or cultural group of the nation, and at the same time, without forgetting that it is a type of educational action grammar, which is part of the center of the agglutinating projects of cultural life in Colombia.

To understand these various educational practices and their relationship with Colombian society, it is necessary to go to a section of the history of the country, the nineteenth century, an era in which political domination was given in the confrontation of the only two political parties present in the country, the Conservative and the Liberal. When the government was in the hands of one of these, it totally excluded philosophy in the school system of the other. In this way, it is argued that before 1886, the time before Regeneration (from 1886 to 1930), the norm of the day was a compulsory education for all, free, and secular; in that period "The Catholic conservatives established private schools to preserve their ideology and beliefs" because the Liberals were in government power; "same happened during Regeneration, but this time it was the Liberals who founded private schools" since the power changed hands [10]. In 1886, the state completely gave control of education to the church within the moment in that it developed the new constitution of the country, and a year later, 1887, a concordat was signed on the subject. In these documents it was established that public education in Colombia should be organized in accordance with the dogmas and with the morality of the Catholic religion. The educational objective was concentrated on forming straight men for the territory through splint and morals. About this is said that:

> At the end of the nineteenth century … Pedagogy the body and soul: this is the intentionally of Catholic pedagogy … moral, good customs, obedience to the state, respect for authority, civility, patriotism, Freedom equality and privileged justice by a strong influence of the Catholic religion, which has been called model of Catholic pedagogy. [2]

At this point it is necessary to clarify that this set of powers, governmental and educational, has been inherited in the country since the colonization. At this time the country had the arrival of confessional education in opposition with the education of the indigenous tribes of the territory. In the end, Colombia opted socially and politically since 1920 for the organic decree of public instruction (DOIP)[1], which manifests a free education for all Colombians and secular ideology; so that, Catholic education passed into the private sphere and appeared, apparently, in the peripheral space of culture, while lay and public education was located in the centrality of the system.

It is evident from the foregoing sketch that confessional education presents its own educational intentions, guided by particular values that is present and that is evident inside the analysis of different manifestations discursive above the daily life of the main actors in the religious schools: the students; according to the latest proposals of the semiotics on the matter, "courses of action where the horizons of dominant values become evident" [9]. In the case of the country, in recent years, the presence of educational institutions of a Catholic order has

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[1]Originally posted in normal school. Official Journal of Public Instruction. Bogotá, Nos. 1, 2, and 3 of January 1871

taken force in the area of formal and private education. Concrete example is the data presented by the Catholic National Confederation of Education in Colombia, CONACED[2], where they present the current presence of this educational approach in 20 of the 32 departments of the country where they have 29 dioceses[3]. In the case of the territory studied, Bucaramanga and its metropolitan area, it was concluded there were 26 confessional institutions belonging to this confederation in the year 2015. If the surface of the territory studied is 1479 km^2 and the surface of Colombia surpasses it in millions of kilometers, we can determine the complex number of institutions that in the country are educating with the principles of the church.

In the midst of this particularity of cultural organization, from the educational planning and execution, many young Colombians are immersed in a confessional educational process in which they experience a great diversity of institutionalized formation practices and that are coherent with the confessional way of life, for example, the Eucharist and celebrations of patrons or saints. In this course of actions, a repertoire of significant sets that contemplate social representations constituted of imaginary[4] that are part of the horizon of cultural intellection and of the value systems associated to this formation according to the perspective of the learners [11]. This symbolic universe of what confessional comes into tension with the dominant educational discourse of the country, that apparently, it is secular, that is, that it does not have religious principle.

To this extent, the world of life in Colombian education, that is, the world that is urgent and immediate to every person, is proposing a series of experiences and interpretations in the educational field presided over by the religion [12]. It functions as a frame of reference in which the feelings, experiences, thoughts, and actions of a large group of young people of the country pass. In addition, this configures practices of meaning and communication; in particular, this is an object of interest for the cultural semiotics and pedagogy focused on real practices. Therefore, the contributions of the study, from this dual perspective, are important in order to establish a possible response to the complex problem of the construction of senses constructed by young learners from their school experience and the relationship that they maintain with the different actions both inside and outside of these classrooms.

Also, it is possible to extend the frontier of the knowledge on the subject in the educational semiotic field that initiates at the worldwide level. The interest with which the research started focused on recognizing the axiologies associated with the specific interests of the Catholic educational project that is configuring the symbolic universe, the perception of the environment, and the actions in the world of life of the actors involved in this educational project in the metropolitan area of Bucaramanga. In this way, it became possible to show what seems elementary and common, even already known, like the case of some concepts, practices, and educational projects; actually it is based on assumptions, values, hierarchies, and exclusions when they are put as reference of research study of continuous reflection and critical thinking, it evidences unknown and even unexpected results.

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[2]In this confederation Catholic schools of private character are affiliated, official schools administered by religious entities are ascribed, and colleges of laity are also associated but committed to a philosophy inspired by the Gospel and Magisterial Church.
[3]The diocese is the Christian district or territory in which a bishop holds and exercises ecclesiastical jurisdiction.
[4]Landowsky refers to the imaginary semiotics recognized as a figurative component of culture that is used by numerous people and is part of the cultural heritage.

4. The journey in the analysis and understanding of the object of study

The identification of the axiologies present in the concepts of formal education and school in students of private Catholic schools in the metropolitan area of Bucaramanga (Colombia) used a qualitative-interpretative approach that allowed the analysis of the world of the life of these colleges from the recognition of beliefs, prejudices, feelings, and mentalities of human groups (students) immersed in the educational system. The object of study was taken as a phenomenon that requires a rigorous analysis to understand the human reality, the cultural environments, and the diverse forms of social interaction that emerge in this institute. From the research approach, the type was ethnographic research to compile the corpus, and semiotics is taken up to identify, interpret, and understand the values that govern the educational model studied. These types of research allowed discovering, identifying, and describing cultural self-descriptions built on specific practices from proprioceptive vision (interoceptive and exteroceptive) of informants.

Of the total population of 26 schools in the area, the study counted on the participation of 3 institutions belonging to the same religious faith, but each 1 is part of different Catholic religious communities. Of the participating institutions, one belongs to the diocesans, who could be considered the main branch of the church; it is made up exclusively of priests who direct their life around of Christ as their founder. The population participating in this institution was exclusively male. The other participating school comes from the male order of the mendicants to which the Dominicans, the Franciscan Order of Friars Minor, the Conventual Minors, the Capuchins, the Third Regular Franciscan Order, the Augustinian Hermits, the Order of Augustinian Recollects, the Barefoot Augustinians, the Carmelites, the Barefoot Carmelites, the Trinitarians, the Mercedarians, Mary's servants, and the Order of the Brothers of Our Lady of Bethlehem belong [13]. For the year in which the interviews were collected, at the end of 2014, the school had only a female population in the last years of schooling and a mixed system up to the eighth grade. However, the population participating, in this institution, was of women and men alike. Finally, there is the school run by the Dominican order and by election of the schools which only have women informants.

The analysis of dates began with the compilation of oral discourses through individual interviews and focus groups in students of grades 9, 10, and 11, around the concepts of education, school, learning, teaching, skills, and customs; the speeches included experiences of the young during the preparation they received and are receiving up to the time the moment of obtaining the data. This population sample is selected at random and for convenience under the criterion of having been in the denominational educational institution for more than 4 years. Hence, 70% of the participants have been part of the educational community since the first years of schooling, that is, they have been students of these schools for approximately 10–12 years. The remaining 30% of informants have studied for 4 or 5 years in these schools, and 30% of remaining informants studied for 4 or 5 years in these schools, that is, high school.

From the speeches obtained, through semi-structured and individual interviews and focus groups, it was possible to configure the semiotic level of texts-statements that correspond to the

identification of the product of significant practices [14]. This possesses a cultural heritage in which the enunciation represents, orally, what the pupil is experienced, the symbolic universe of the individuals constructed in the practices and interaction. He himself is able to enunciate by the experiential knowledge with which he counts. In this way, it is investigated in the imaginary impregnated with experiences, in particular, forms of life where it is manifested how the learners perceive their surroundings in the educational process and in the daily school life. The questionnaires used, in the different techniques, had defined three broad categories. The first category denominated as individual representations, the next category is representations in interaction, and the last category is representations with the world. Thus, the study explores from the introspective subject to the subject in relation to the world. Some questions used were:

- What have you learned at school?

- Do you think that reflects in the classrooms and outside of them, the training that the school has given?

- What is the role of teachers in your school? And what is the role of the directives?

- What is the purpose of training in this institution?

- What happens when someone does not follow the rules or guidelines?

The answers to these questions and others will be discussed in some sections of this document. With the obtained record and of the variety of definitions, experiences, and perceptions contributed by the students through the techniques of data collection, we proceeded to the isotopic analysis of the statements and to their respective rigorous study from the methodological proposal of the semiotics of Paris, the generative-interpretative route [6]. With this method the search began for dominant and concurrent features in the statements that made it possible to generalize categories of analysis capable of constructing a metalanguage, defining ideologies, and finally reaching the deepest level of semiotic study, axiologies, that is, the shedding of values, principles, and knowledge, in other words, the educational culture present in the participating Catholic schools. For the moment in this title, we can say that the first results obtained showed without a doubt, the interviewed get a confessional formation according to religious criteria, but with specific requirements of each community; besides this, the isotopies of the discourses allowed to observe a common formation objective: "the catholic identity" and of values in constant tension with the values of the world.

5. Education and the Catholic school from the perspective of its students

Systems of values belong to the deep levels of semiotic analysis. For this reason these are the main constituents of ideologies. From the current theories of discourse analysis, the existence of two basic components in these ideologies is considered. In this measure, you have in the first place the cognitive aspect that impregnates basic principles of social knowledge, judgment,

understanding, and perception, that is, it endows the subject with a knowing and doing in correspondence with what is expected and with what is demanded in a definite core. On the other hand, you have the social aspect, since they are shared by members of groups or institutions and are related to the specific interests of these establishments [15]. In this sense, ideologies are shared socially through the use of "interpretive frameworks" that will allow group members to evaluate, understand, and give meaning to social reality, daily practices, and relationships that each one has with other groups. In correspondence with the above, Catholic education institutions, participating in the research, present an evident ideology that proves the formation given to the student, from the proper values of their religious community and according to the academic action, evaluated by obligatory tests at the national level, as one participant says "In the academic area I have learned everything and the principles of the school, I have learned the values that teach us as humility, respect, honesty, simplicity, all that" (student No. 2).

In relation to the above, one of the first findings in the analysis of the discourses was to identify that learners perceive themselves as subjects that they are part of a process capable of molding them, improving them, and contributing them to become people of "good" in the Catholic way. In fact, the word: good, person of good, and similar words in Spanish appear consistently in the discourse of the boys. As stated by student No. 1 (…) pieces of clay, because they take us and they mold them as best person. The recurrence in the statement "to form people of good" allowed us to recognize the implications of the term regarding the Catholic educational ideology and the interpretative frameworks from which young people are evaluated. About this, pupil is presented as a being with deficiencies in the Catholic, but with potential for the future, and those who do not have potential will at least serve something; for this, all try to help them improve in the institute, according to student No. 9.

From the dialogue with the informants, we were able to identify that all they learned the interpretative framework; that is, the students have already assimilated rules, practices, particular form of life in their formative years. This allows them to evaluate, understand, and give meaning to the different practices and actions of their environment. In consequence, the oral discourse obtained exhibits that young people can evaluate their current formation process; so they review their formation as positive and influential, because they consider themselves a little more skilled in academic competencies and with a great advance in the acquisition of values of their institutions. From the personal perspective of the students interviewed, they see themselves as more human and "good" according to the Catholic way that is different from the ways of being in the world, as established in the student No. 3 "look at us as trying to change the mentality of society and that we are different, then as that is what we are trying to explain." In a critical sense, the answers obtained show a design of exclusive universes that bifurcate between catholic education (euphoric) and the formation of the exterior (dysphoric) associated with unacceptable behaviors.

In addition, in the statements, we evidence the representation of education as a process of the human being. It has capacity, possibility, and competence to influence, modify, and construct the being and at the same time the knowledge, feel, and act of each one of the students; in these statements the subjects recognize the impossibility of resistance to it. Likewise, they reiterate that they still need to continue improving in the process according to the expectations of the institution to which they belong; so, in the statements we have expressions from

the evaluation of teachers and directors toward learners; student No. 1 said "they must see us as vague, the most annoying person, those who always behave badly".

From the perspective of states described in the statements, we can distinguish that education is conceived as a process: Unfinished, durable, and imperfect, and the school as an institutionalized space for education intentionally. In this sense, as stated by the students, they are in a process of transformation in which they acquire a way of being that is of "good people" or people humanized in the Catholic way. This part of the Manichean idea that before the educational process, the student is a bad person, not because of lack of competence, but because of the nature of the subject who arrives without being a finished subject without knowledge of how to be "good". In this process, the school acts as a mediator or assistant that helps the subject to make an order in their lifestyle in correspondence with some ideological bases and some particular principles. Accordingly, they lead them to be united to values and principles of a social and denominational type of the institution that would make them the best people the world needs.

In order to achieve this, the school participates in the construction of the competence of the subjects (students) and their interpretive frameworks, offering them the experiences and the proof (among them, the practices of religious rituals outside the interest of several students, they said it themselves) to get the desired identity of the school and family project of each student; in this regard student No. 4 enunciates "Mathematics, Spanish … the as signature normal and Catholic Eucharist and group direction … the Eucharist that is not as signature, but is in the school schedule." It is then reaffirmed that the educational process of this younger generation, from their experience, revolves around the transition from an initial state of disjunction to a final one of conjunction to make them competent or in words of themselves "good person," but this is a "good person" from the confessional perspective. In this respect, student No. 10 states "education here has always been schematized, mostly because we are very conservative" and said that "we have here to learn this and some external things, as influences are bad. So the simple fact that one does not agree with something that you are living, that the world is governed by that and that kind of thing we could call taboos, here they work very delicately or they do not make this."

The transition from one state to another as referred by the learners is a process of transformation that depends entirely on external figures of the transitive type; since they appeal to actors different from themselves for the performance, always these external persons are in the statements as teachers, directors, and God. Precisely, the achievement of the objective of formation in the way of the object of study is based on the dependence of another who orients, orders, and thinks, sometimes even does it for me. According to the recurrence in the speech, the main actors are the teachers who guide the process. However, as a collective actor will be located to the educational institution that encompasses the different involved in the process (rector, coordinators, teachers, and god). In this way, it is formulated from the semiotic actantial level the following narrative structure where S2 will be the educational institution, S1 the student, and Ov is to be the "good person":

Transitive type relationship

PN= H2 (S2 → S1 ∩ Ov).

In this way, the narrative structure expressed by the informants (students) has figures such as injecting principles, instilling something that suddenly does not please others, and taking us to shape ourselves as a better person. This allows us to observe the constant transitive relationship associated, by students, with the concept of education. But this is not experienced always euphorically by the subject who feels like the object of "injection" of something that must be incorporated inside. On this, it is proposed that the education should be the main generator of centripetal forces that counteract the laxity of the family system, so that the learner must be related with practices different from those of the home, such as practices of the interior of his/her culture [16]. In the case of confessional formation, the subject is coming together with practices in which he does not experience being an actor responsible for his own formation and, therefore, is not aware of the indispensable autonomy in the process, so that he appears limited in his performative competence, and they give the responsibility to the teachers and the Catholic school institution.

This formation of the catholic identity, orientated by the "to become good person," has values, principles, and some knowledge that the school establishes as condition of the competitions of the subject, and this presents like a lifestyle of the student. They provide the basis for judgment about what is right or wrong and provide basic guidelines for social perception and interaction [15], so that the values that the school has selected are considered as the basic criterion to evaluate the actions of each person in these ideological systems and the other surrounding ones. These normative models are based on specific axiologies of this type of education and of the proposal of Hamon about this; we identified in his article "texts and ideologies," where he proposes four axiological axes that are represented thus, "the hand that puts into play the technological; the look, the aesthetic; the voice, the linguistic; the displacement, the ethical" [4].

Of the four axiological axes: linguistic, ethical, technical, and esthetic, the statements that were analyzed allowed recognizing the existence of an evaluation standard that tends to focus primarily on the ethical when proposing the formation of a Catholic identity that converges in the being and secondly, the esthetic with the personal presentation. That exposes a care of the body that is imposed by institutional and confessional rules. About this issue, the school demands to student that this uses colors and objects that were not striking and different, like the black or white colors. Cleanliness is vital. Inclusive hair style; for example, men should preferably have short hair.

The statements in general show the concrete forms in which the principle of esthetic homogeneity in the students is positively valued; the order, the personal cleanliness, the dressing, and the use of colors and objects that are not striking and different from the other actors are highlighted. On the contrary, differential, provocative, disorderly, dirty, noninstitutional identity is valued differently. In terms of technology, it is considered as knowledge of the student that must change as the world transforms, but its use is regulated by the tools and values that the institution gives it. In the linguistic axes, the college values the use of non-rude expressions or that slanders the religion or its beliefs.

Of the previous criteria, in only one of the three participating schools, an explicit vision of inclusion of the other was evidenced, but under the criterion, I respect what the other thinks,

if this one respects mine. As one participant says "there are girls in the school who are not Catholic, there are girls who are Christian (not Catholic), there are some Protestants and there are girls who do not believe, or they are not believers, or they doubt, but here, that is allowed and respected (…)" (student No. 4). In the other two schools, the discourse of the difference between us and them like a society that we must change and not follow is more marked.

6. At the heart of confessional formation

After analyzing the discursive data and categorizing them, according to Hamon, one arrives at what is the heart of the interpretative process that puts into semiotic terms as "minimal armor of the story" [14]. This is where the most conceptual and deep structures of thought are organized and the values that guide the levels of further analysis are present. In this sense, the analysis showed a clear tension between autonomy and heteronomy of the individual. It indicates that the relationship of subjection of the student subject by the action of the Catholic institution is to educate not only a good person in terms of autonomy but also a good obedient person, to the norms, rules, customs, and ideologies that religion demands. The following diagram shows the voltage between these values (**Figure 1**).

The previous figure shows that a heteronomous individual that is receiving a critical formation can reach a state of autonomy, as this learns to include with others, caring for oneself by
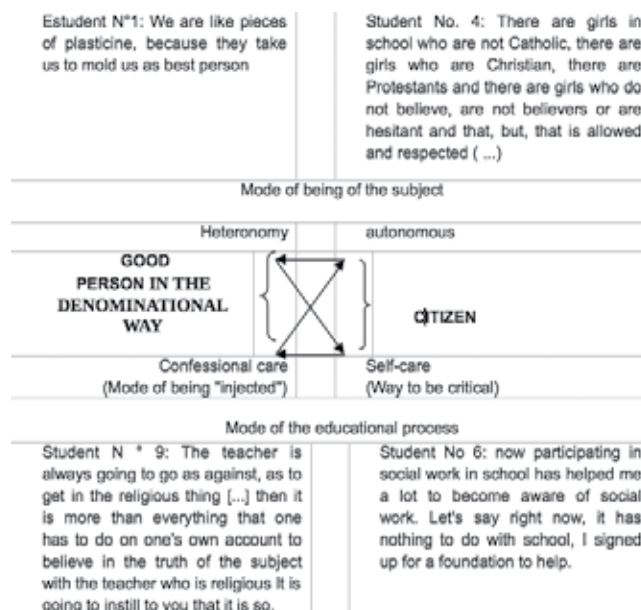

Figure 1. Semiotic square of formation in Catholic schools. *Source:* carried out by Diana Marcela Pedraza Díaz in the framework of the research Representations of the students on the education and the catholic and private school.

conviction and in the use of their full rationality, that is, a subject that obeys a care of itself and, of course, a care of the other from a more inclusive view. This autonomy makes the individual act by the well-being of himself and those around him. For its part, a subject in the middle of an imposed formation, without a volitional tendency and that must assimilate an injected ideology, ends up forming as a heteronomous subject. In this way, it can be deduced that an autonomous subjects due to rational freedom can be considered a citizen, the citizen that many educational projects claim to form.

However, the subject educated to be governed by imposition or mandate of another without rational will would be a good obedient person. Subjects are acting under inflexible and fixed norms. Consequently, when they are in new situations or times not contemplated by their rules, they face conflicts with themselves and with the eventuality faced. It is more difficult to think outside the evaluative framework that they have acquired, and they have difficulty opening and accepting changes in lifestyles because others define what they should think and do. It is precise in the midst of the two modes of being and the ways of perceiving oneself and to the others that the educational process moves in our country and could be said in the world [17].

In their great majority, the discourses analyzed showed, isotopically, that the subjects obey the will or principles of imposed form by others, manifesting that the education that they are receiving tends more to the heteronomy, that is, it focuses in the learning of confessional care and the practices rituals and beliefs, in a process in which an individual submits to being led by others to be a "good Catholic person." Nevertheless, some discourses allowed to identify a tension in the axiology, since they point to cases of order of specific schools in which one is trying to promote the critical care of the yes and others, but still it is limited by the ideological biases; for example, in the social workings in which the confessional principle is to help the poor and needy because the institution raises it, now, "I am participating in a social work in school. It has helped me a lot to become aware of social work" (student No 6).

Other points in which the two great forces present in confessional formation (autonomy and heteronomy) are evident in some actions and moments of school life; as student No. 3 says, "I am here because I like the ground, because one can run and enjoy, this is outdoors, the soccer field is big and I enjoy in the break." In this case, this informant is there by selection, and his permanence in the institution is to free election. But, the bond with heteronomy is stronger in especial case of some activities out of playtime; the same student says "you rarely say I go to some activities because I want it and not because it touches me, especially regarding religious activities".

It is possible to recognize other axiologies linked to the already mentioned in relation to the modification of power and the being of education and school. The categories obtained were power-being (p/s) and duty-being (d/s), power not-being (p/-s) and duty not-being (d/-s), non-power not-being (-p/-s) and non-duty not-being (-d/-s), and not power-being (-p/s) and non-duty being (-d/s). All were evidenced in some institutional norms such as do not say rude; wear uniform with shirt inside and polished and color shoes established; keep class-rooms clean; and no love relationships at school. Finally, student No. 11 says that in school the

teachers and managers tell them that they should not follow the things of the world because this is bad. Hence, a regulation on the behavior of students both inside and outside the institution is perceived. Besides, the difference between a "we" with of a Catholic identity and a "them," called people disjointed from the Catholic profile who should be tolerated and who should be helped since they are in the wrong, is clear.

Thus, in the ideal of the institution and in the statements of the students, the euphoria is a positive valuation, facing the values of goodness, rectitude, dialogue, collaboration, moral conscience, and a love of God, embodied in the object of an educational profile and an identity around the "being good person." The coercion established on the individual to "it makes it be" according to the ideals of a project preset and fundamentally heteronomous with certain visions of autonomy is reiterated.

7. Conclusions

The discourse of the students allows recognizing that the education that they are receiving tends to be a great extent to the heteronomous, traditionalist formation, in which the individual is submitted to be directed by others. The student is under inflexible norms and values proper to the mode of being confessional. This puts in trouble the two modes of realization of the Colombian education project. On the one hand, there would be a belief system of a religious nature, with a strong tradition, which claims the leadership of another as a guide to action, while in the constitutional order of the country, the mandate is clear in the defense of critical education. It should promote autonomous people and a community with citizens and should be competent and open to changes, at least in the theory.

With the above, it is possible to observe in the subject discourse that education is thymically dysphoric when from the heteronomous view they are imposed forms of being and do not relate to their interests and needs, when the imposition is prime, and when they are considered being passive and exclusively receptive entities. However, when young people recognize in their life, for example, outside the school or in times of leisure, the initiative to be a competent subject in society, a being able to participate and make decisions, active and creative, they show euphoria and satisfaction. Thus, it seems that in the development of confessional formation, the axiologies present in the process tend to alienate the subject from the reflexive and critical relationship expected in the school spaces, which contravenes the Colombian national education project that enshrines the formation for the exercise of citizenship from the exercise of critical thinking and the defense of fundamental rights.

Thus, it is necessary for those in charge of formal education and school management to stop and think about what they do, how they do it, why they do it, and for what they do; this is not just to act without recognizing how we are doing the things and how we are balancing education and school. It is enough to ask if in fact the educational intentionality is leading to an education from and for autonomy, or we continue repeating the educational models that have done so much damage to Colombia, and as the history of the last 115 years of the country

shows, it needs a real "Regeneration." It can be seen that this semiotic and pedagogical analysis of educational and cultural practices evidences belief systems where moral, spiritual, political, esthetic, mercantile, and other moral values are established and consolidated. These regimes are part of a historical tradition and symbolic configurations of life forms of education that will have to be studied more widely in the current knowledge of various training projects that in this moment are offered to children and young people in different countries from particular ideologies, parallel to the established in the grammar of the state educational laws.

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Categorizing Teaching Knowledge from the Perspective of Students: Narratives about Memorable Teachers

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Additional information is available at the end of the chapter

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Abstract

The following article approaches, as an object of research, the teaching knowledge of memorable teachers from the perspective of the students; narrative analysis was chosen as a methodological strategy, by categorizing 28 texts written by undergrad students at the University of Veracruz in México, belonging to the bachelors in pedagogy program. The objectives were aimed at categorizing the meanings of teacher's educational knowledge, explaining those samples of knowledge that left a mark in the lives of pupils, describing educational knowledge in the technical and professional realms, and distinguishing between those categories that involved bad teachers. The results show eight categories that answer to the objectives in this research; these categories are didactic knowledge, human knowledge-patience-comprehension, the ability to explain—gift of teaching, educational knowledge strategies, educational knowledge specific to memorable teachers, planning and assessment knowledge, knowledge on strictness-tidiness-formats, and knowledge on good attitudes of teachers.

Keywords: teaching knowledge, narratives, university students, memorable teachers, higher education

1. Introduction

The educational system in Mexico was constituted, during the 2014–2015 school year, by a population of 36,060,653 students belonging to basic, middle, and higher education [1]. This great population of students is itself part of a greater population of 119.5 million inhabitants

in Mexico [2]. The total number of teachers that attend to this immense educational demand for this same school year cycle amounts to 1,905,722 teachers, from which 63.6% of teachers attend to basic education (initial, preschool, primary, and secondary education); 15.1% of teachers belong to schools in the middle superior level (high schools, vocational schools), and finally 19.1% of teachers attend to higher education institutions (undergrad and graduate programs).

The formation of teachers to specifically attend to basic education needs in the country takes place in the 485 teaching schools and, in the education, faculties of non-technology-related public and private universities which ascend to a total of 4389 institutions of higher education. The challenges that are involved in the improvement of basic education quality demand for teacher formation policies that put emphasis in the educational abilities and competencies for teaching; among these abilities is the importance of emphasizing the teacher's knowledge that has an impact on the profile, parameters, and indicators of teaching performance [3].

2. The perspective of students on teaching knowledge

The point of view of students about different educational phenomena in which they are involved is an essential and powerful component that can be useful to influence improvement processes, considering that including the perspective of those that learn educational processes "can help us to improve teaching, to weave the ties of coexistence and to make their stay in school meaningful" [4] (p. 27). In this sense, in accordance with [5], as well as [6], these highlight the need for the students' voices to be included in order to improve the practices and conditions of teaching and learning processes in schools.

On the same note, according to [7] (p. 40), it states that the information obtained from students can be useful to determine the dimensions of their learning, which commonly receives little consideration; furthermore, also [8] the perspective of students when researching the factors of success in their undergrad studies takes into account. It can be established, therefore, that the point of view of students has been a valid source of information to be considered in research pertaining teaching and learning.

However, in contrast to what was stated before, in [9], it is considered that the voice of students, specifically in relation to the evaluation of learning, has still a long road ahead and that the results of their research show a "lack of evidence on the real participation of the students" (p. 2).

Nevertheless, it is necessary to insist on the participation of students in order to develop a particular kind of research in which their perspective is fundamental; particularly, according to [10], it is important to incorporate the perspective of students to be able to "deepen in the construction and validation of the image or social representation of students on what is a "good teacher" and "quality teaching" (p. 5). In this same vein of agreement [11], there are some who maintain that to carry an investigation about teachers from the point of view of students

represents a great opportunity area to understand how the academic world functions, considering the actors who are more relevant and authorized, that is, the subjects of learning.

3. Teaching knowledge

According to [12], teaching knowledge relates to a "particular kind of day-to-day knowledge learned by teachers. It is the knowledge concerning the testing and solution of problems that the teacher's workplace poses in the specific conditions that are presented and in the continuous and necessary reflection which at the same time, their work imposes" (p. 60).

Likewise, [13] agrees that the said teaching knowledge is contextually constructed as it is important to recognize a framework of relationships from which teachers construct their practices, which constitutes the basis for that body of knowledge. For [14], teaching knowledge must be built from within the profession and from dialog practices between teachers, constructing a professional culture (also refer [15]); along the same lines, in this topic [16], which points out in his research the results of dialog between two teachers in relation to the commitment toward their teaching practices—which in itself constitutes a teaching knowledge—it concludes that the professional knowledge of a good teacher achieves success when it manages to influence the lives of the students by maximizing the different ways in which they learn.

Terigi [17] proposes an analysis of the knowledge and teaching work using a neotaylorist approach to the evaluation of teaching competencies, which comes as a response to the demands imposed by a competitive and globalized context. This supposes a devaluing process of the teaching knowledge (pp. 7-8).

On the other hand, [18] establishes that "teachers articulate diverse knowledge coming from their professional training, disciplinary or curricular formation, experience or practice, built throughout their lives and career paths" (p. 5) and, above all, that this is not about elaborating a list like a recipe about the said knowledge, and later having the wrong idea to apply them mechanically to new contexts, because this would avoid a fundamental question:

"The key question is how to define and from what theoretical and methodological stand the construction of key knowledge and competencies for the XXI century can be approached, what characteristics must be met by those determining that list and what premises do they hold? Will they be able to avoid the temptation to protect their own values? Will they know how to do it? Will they want to do it? What group or groups will be charged with this task?" [18] (p. 20). Answering some of these questions might be the result from an informed dialog between researchers, academics, and teachers.

Teaching knowledge revolves around a professional "know how" that leads to a good "teaching." On this same topic, [16], in his research, makes the following question: How does a teacher build "his knowledge" within the teaching phenomenon? This inquiry leads us to examine the different research that has been done about teaching knowledge and implicate among themselves those investigations that involve the perspective of the students.

4. Research on teaching knowledge and the perspective of those who learn

In the research done by [19], which concerns the meanings that students associate to the terms *Good Teachers and Bad Teachers*, using the technique of natural semantic networks, the authors highlight implicitly diverse categories of teaching knowledge contained in the everyday work of good teachers. These categories are synthesized by a distinctive feature expressed by a key word in the natural semantic network: knowledge, preparation, responsibility, intelligence, organization, committed, punctuality, trained, communicator, and emphatic; in the same way, the absence of teaching knowledge is expressed in the categories such as irresponsible, unpunctual, ignorant, lazy, disorganized, arrogant, unprepared, boring, and unjust. It can be established that, in every category belonging to a good teacher, teaching knowledge is constructed in the procedural order and is presented as a "know how" in the teaching of students.

Along the same lines, [20] present us with a portrait of a good university professor from the point of view of the students in Tunes, using the technique of the focus group; in this "portrait" behind the features of the said profile, some teaching knowledge traits are also delineated. The authors propose a research question: What qualities, both human and technical-professional, should have a university professor? The answers point toward three categories. *Personality features*: sympathetic, honest, patient, tolerant, kind, and flexible; *their relationship with the students*: good communicator, motivational, respectful, widely noting students, adopting a participative style, and accepts different learning rhythms; and *their relationship with their discipline and knowledge*: competent, expert in the language of the discipline, pedagogic strategies, cultivated, disciplined, etc.

Again, the point of view of the students is taken into account, this time in a categorization of the teaching knowledge in an investigation about those who are considered to be good university professors; concerning this, [21], using the same technique as [19] of natural networks, finds three groups of answers or categories in their networks. First group: respectful/responsible; second group: sympathetic, emphatic, punctual, intelligent, and kind; and third group: precise, organized, and motivating. This research from [21] establishes that the teaching knowledge, which is part of the features of a good professor, is not present in clear-cut categories that are perfectly compartmentalized, but on the contrary are all intertwined; for example, the teaching and didactic knowledge from the third group unite with motivational skills and didactic attitudes, which are proper to the personality of the teacher.

Also in this topic, [22] researched on the proposals of what is considered a "good professor" at the Universidad de Sevilla, in order to maximize learning by their students; they found motivational strategies, reinforcement of student's progress, monitoring of partial achievements, organization strategies, and systematization of classes to highlight relevant content of orientation toward students. One of the key questions made for this research with an ethnographic approach, was: What do teachers and professors offer to facilitate learning of their discipline? This question linked teaching knowledge to the diverse teaching strategies and proposals of what are considered "good professors," aimed to improving academic performance.

In the same line of research, [23] describes expert teaching knowledge, being almost a form of art, which is described by Don Finkel in his proposal: Teach with the mouth closed. This work considers the subject of the genius teaching knowledge, on the part of a great teacher, *to teach with the mouth closed*; genius teaching knowledge entails according to this work, the avoidance of mere oral transmission, opting for innovating teaching methods. Hence, in this text, teaching knowledge emerges: "Let the great books speak" and "employ puzzles, paradoxes, and parables," because these methods lead to active and creative thinking, solving problems in the classroom and transforming an oral class to an imaginative and alive class [24].

In contrast to the research already mentioned in [25], using the technique of observation carried out research on the teaching practices of those considered "the best evaluated teachers" at the Universidad de Vigo. The authors found that even among the best teachers there are some teaching practices which can be considered traditional, as they are focused on the contents or on the teacher. This might entail that any orthodox and strict proposal will convey teachers that even when considered to be good are also fallible and forcibly pushing the content of their disciplines, giving the privilege to the teacher.

5. The problem of teaching knowledge in schools

According to [26], in school environments, linger unpredictability, multidimensionality, immediacy, uncertainty, and weak institutional frameworks concern what a teacher should know and do in the classroom; this conveys the need to question teaching knowledge and review current strategies so as to undergo a renovation of professional work. Furthermore, the authors state that the complexity and requirements that are currently demanded from teachers by school authorities result in greater workloads, provoking feelings of impossibility and frustration on their part, which make it harder to generate knowledge and school achievements.

On the other hand, as stated by [27], teachers, in relation to their teaching knowledge, are facing difficulties. Every day they face a variety of difficulties, and with the help of this knowledge, they will arrive to possible solutions, not as a result of fast calculations or eliminations, but as the outcome of the analysis and reflection on problems of teaching and the most appropriate ways to solve them. Likewise, [28] adds to the discussion with the idea that teachers face multiple problems related to "how to teach," which arise suddenly and unexpectedly; when facing these situations, teachers possess a so-called practical knowledge, which is constituted of a series of mental images responding to these problems, and from these, teachers choose what they consider the most appropriate manner to respond and apply it to the said problem or unexpected issue. Following this same line of research, [17] proposes what he calls "pedagogical knowledge by default" which is a teaching knowledge "that has problems when facing the current conditions where teaching work is produced" (p. 28) and, adding to this, above all, at the moment when determining the possible alternatives to the difficulties of teaching work.

In [29], the issue of the value of teaching work and the problems and frustrations related to it are addressed. This descriptive taken on this subject is first concerned with the teaching

knowledge, as for every conceived problem, there is a corresponding teaching knowledge that deals with the solution; and, hence, the author registers in descending order of importance of the following: problems with the relationship and collaboration between parents and teachers, little interest shown by students, poor or irregular assistance, problems with learning and academic performance, desertion, disobedience from the students, problems when attending children with special needs, etc.

This core of problems which points to the backward and marginalized faces proper of a poor and marginalized school environment forces us to consider if the presence of consolidated teaching knowledge on behalf of teachers has a relevant role in attenuating or solving these problems in schools.

The importance in this study of approaching categorizations that give meaning to teaching knowledge of memorable teachers allows us to arrive to the field of good practices [30]. Students remember their good teachers for their excellence in their pedagogical knowledge, and in their practices, good teachers from the generation preceding ours offer us their teaching knowledge from the systematized remembrances of their students, which constitute the main objective of this study; if this research contributes some principle or knowledge that could be incorporated to the state of the discipline, in this case the formation of teachers will have an added value.

6. Research questions

Once the background and problems regarding teaching knowledge and students' perspective have been considered, this study will be supported by the following research questions, which will guide the process of data collection and analysis:

a. What categories give meaning to teaching knowledge of memorable teachers from the narratives of a group of undergrad students at the UV Pedagogy Faculty?

b. What kind of teaching knowledge categorizations left a mark in the life of the students?

c. What dimensions of teaching knowledge are implicated in the teaching process of disciplines that are specific to the technical and professional sphere?

d. Considering the categorizations of teaching knowledge constructed from the narratives of students, which categories are implicitly related to bad teachers?

7. Objectives

In accordance with the research questions put forward in this study, the following objectives have been proposed:

• To categorize the meanings of teaching knowledge, from a set of narratives provided by students of the Pedagogy Faculty at the Universidad Veracruzana.

- To explain the teaching knowledge present in those categorizations that has left a mark in the life of students.

- To describe teaching knowledge that is implicated in the teaching process of different subjects and that are specific to the technical and professional realm.

- To distinguish those categorizations that are implicitly involved in the performance of bad teachers.

8. Methodological strategy

The method that was chosen to address the categorizations of teaching knowledge from the perspective of the students is *narrative inquiry*. As has been pointed out by [31], narrative inquiry is increasingly present in educational research; this owes to narratives being both an educational phenomenon and at the same time a research method. Hence, it is possible to do research through the narrative analysis method, and a particular phenomenon can be narrated from the perspective of narrative inquiry.

As stated by [32], "narrative inquiry has as its core the analysis of human experience" (p. 139), and it is about making those experiences understandable and above all to assign them meaning. Likewise, for [33], "narrative research, based on interpretative hermeneutics and phenomenology, focuses on the meanings that people attribute to their experiences" so that those meanings are integrated in a vision that reconstructs more complex meanings (p. 51).

Within the narrative inquiry framework, this study adopts the biographical narrative approach [34]. Consequently, this is an attempt to retrieve the biographical narratives provided by 28 undergrad students enrolled in the Faculty of Pedagogy at the University of Veracruz in Mexico, about their memorable teachers in order to make categorizations of their teaching knowledge. In addition to reading the narratives and constructing a primary document with them, the next phase involves the systematization of the texts to achieve the rationalization of the biographical narratives, that is, to reorder data and proceed to its coherent integration in a reconstruction or singular narrative of all the texts [35].

On this subject [36] make a notable contribution in their research about autobiographies of memorable teachers. In their study, the categorization of narratives goes through the process of identifying in vivo *codes*, that is to say, key words that capture a strong meaning in the narrative stories that are a product of several narratives or stories. These codes, with such a strong meaning, can express the name and content of a whole narrative categorization. In the case of this study, 28 narratives of undergrad students from the University of Veracruz, Faculty of Pedagogy, were processed using the software package for the qualitative data analysis ATLAS.ti in its version 7.5. The narratives were integrated into a primary document for its analysis and the creation of several categorizations.

At the end of this process, the description of the categorizations that were found was integrated into a macro-narrative which answers to the questions guiding this research in the section dedicated to results.

9. Results

What follows is the group of categories that retrieve the meaningful codes about teaching knowledge of good or memorable teachers, from the perspective of students in their narratives.

9.1. Teaching knowledge of memorable teachers

In this category, the teaching knowledge of memorable teachers is brought to light through the integration of six codes that describe a good teacher from the memories of the student. This category represents a recognition of the good performance, and the teaching knowledge of memorable teachers, their abilities, and dedication to applying effective teaching strategies are remembered: "My teacher's name was Angelica, she was a very good teacher because she utilized very good and interesting ways to work" (Na17 UV, in **Table 1**).

On the other hand, when calling a teacher *"memorable,"* it is implied that there is a recognition, admiration, and respect for his or her knowledge, in addition to gratefulness for the efforts of the teacher employed in the formation of the student, the kindness, and the good heart shown by the memorable teacher, who combines expert knowledge and didactic abilities with an interpersonal touch that has left a mark in the formation of the student: "The only teacher that has left a mark in me was a teacher named Xóchitl, this was during my high school years. Besides from being my teacher, she was my tutor for two years and a half. She was a strict teacher but a very good one, with a great heart" (Na11 UV, in **Table 1**); this memorable remembrance describes the practices of a teacher that was able to modify the formation path of the student and therefore attains the level of a memorable teacher (**Figure 1**).

The act of naming, using first names and surnames, a memorable teacher denotes a fine admiration on behalf of the student; the memory is a strong one and has left a mark in the career path, and hence the memorable teacher has become a role model [37].

This happens even as it was identified that the teacher used traditional but effective teaching strategies. This is to say, the memorable teacher has left a formative impression in the memory of the pupil; notwithstanding, if he or she was a constructivist or traditional teacher, he taught

Code	Decoding	Date
(Na1 UV)	Narrative 1: student of the Faculty of Pedagogy	14/10/2016 (first workshop session)
(Na11 UV)	Narrative 11: student of the Faculty of Pedagogy	14/10/2016 (first workshop session)
(Na14 UV)	Narrative 14: student of the Faculty of Pedagogy	14/10/2016 (first workshop session)
(Na17 UV)	Narrative 17: student of the Faculty of Pedagogy	15/10/2016 (second workshop session)
(Na20 UV)	Narrative 20: student of the Faculty of Pedagogy	15/10/2016 (second workshop session)

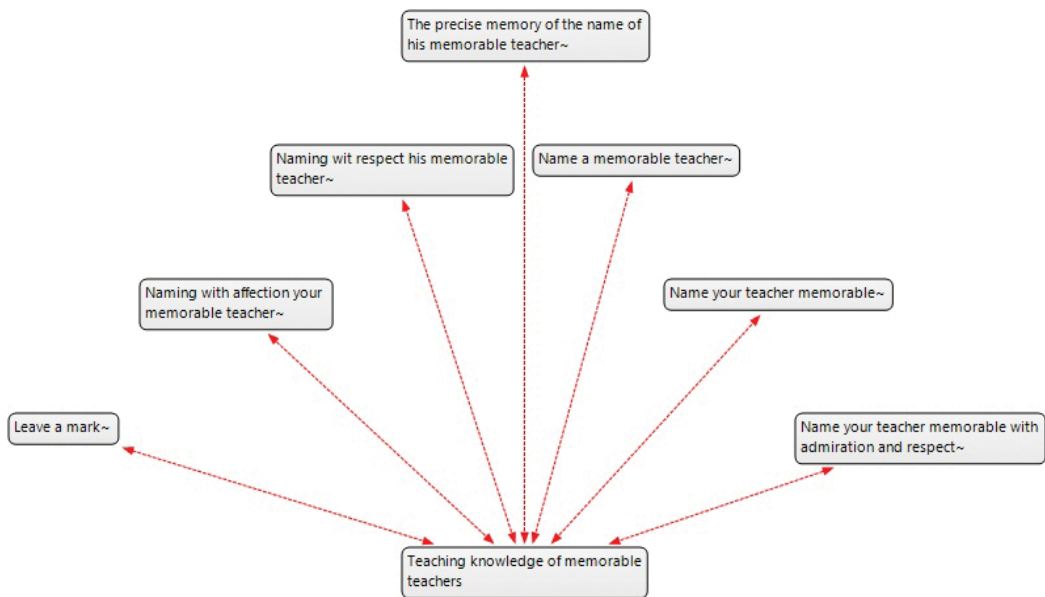**Table 1.** Decoding in empirical citations.

Figure 1. Category: teaching knowledge of memorable teachers.

his or her student very well to the point where the teacher was memorable to them, as it was expressed in one of the narratives: "I had several teachers whom I love and respect, but there was one teacher that gained my admiration, and he has my respect and affection, his name: Jorge Cabrera Cruz, he was always supporting me and not just me, also all of my school mates" (Na 14 UV, in **Table 1**).

Finally, when remembering the name of a memorable teacher, it is done in a warm and evocative manner: "Teacher Betty…She is very kind, she understands the life of the students, she tries for you to understand as a group or personally. She is always available for any doubts that you might have" (Na 20 UV, in **Table 1**). In this last passage, the recognition of the commitment and dedication to the personalized learning process of the students on behalf the memorable teacher is shown.

9.2. Teaching knowledge: category of the ability to explain—gift of teaching

This category integrates codes whose meaning recognizes the outstanding ability of teachers in the knowledge of how to teach, i.e., the gift of teaching. This set of codes refers to a very significant characteristic of good teachers, who maintain as their knowledge the capacity to simplify a complex topic for the easy understanding on behalf of their students. This knowledge or gift of knowing how to teach is associated in a direct manner to the mastery of their subject. In addition, this categorization is concerned with the presence of a teaching ability in the management of information and the ordering of the content presented to the students; this ability is shown by very good teachers, and they manage to be admired and taken as an example for appropriating this content (**Figure 2**).
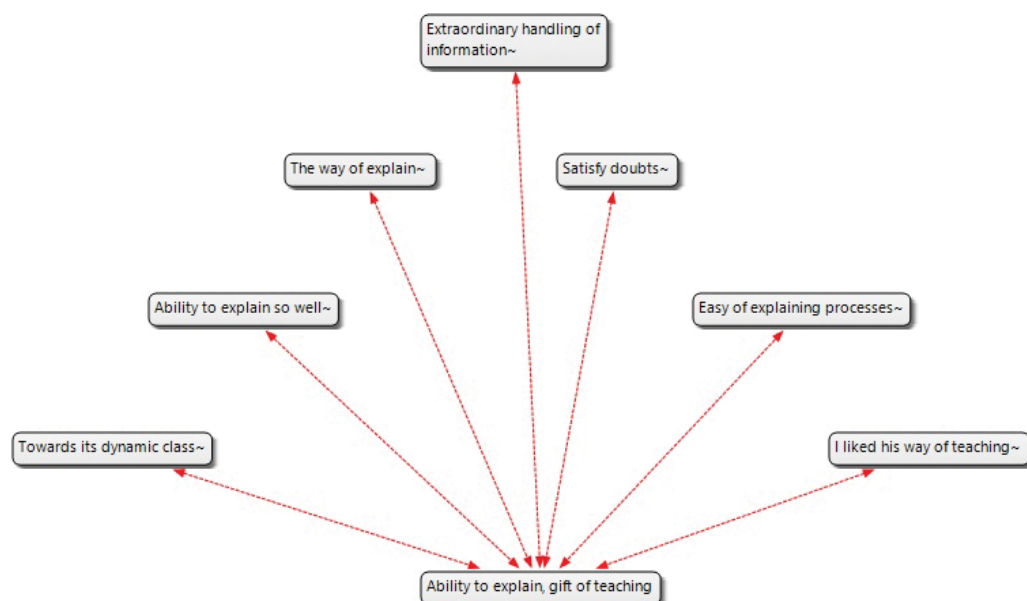
Figure 2. Category: ability to explain—gift of teaching.

This category focuses on the set of skills acquired by the teacher in regard to knowing how to simplify and convey in a straightforward way the topics of their subject and this way facilitating the complete understanding by the students; this superior ability of "knowing how to explain well" [38] concentrates on the characteristic of having explanatory resources to address complex contents and deconstruct them for their students in a clear and easily understandable approach, to which the student reacts in a very positive manner, expressing a joy for the way the good teacher is able to convey ideas, which even when the methods are traditional, they are adapted to what the student needs to learn by the very good teacher. "This teacher had the talent to explain the processes needed to solve this kind of problems, she was able to make me understand so well, that I even began to like mathematics" (Na1 UV, in **Table 1**). As can be seen from this narrative, being able to explain topics so well not only facilitates the full comprehension of the subject, but also it stimulates the enthusiasm on behalf of the students, and this has an influence on the future career paths chosen by students.

9.3. Teaching knowledge: strategies

In this category, teaching knowledge is concerned with the mastery of teaching strategies; whereby, the codes that are part of this categorization refer to the ability of good teachers to make their classes very dynamic. The category focuses on the teaching knowledge that is expert in the management of students, groups, and the content being taught, integrating strategies that are able to spark the participation of the group and arrive to the construction of learning [25].

The effect of this teaching knowledge being put into practice is the dynamism given to the classes on behalf of the good teachers, keeping in mind that a dynamic class is not the same to an interesting class; the dynamic class is more related to the active usage of didactic

sequences and strategies, which results in actions, to the movement inside the classroom, to applying dynamics to the session, and then following the class becomes an agile activity, not tedious. The interesting class involves being trapped by the plot and interest of the topic; we could then not move in an interesting class, but it does not become dynamic (**Figure 3**).

On the other hand, this category refers to the procedural characteristics of good teachers; whereby, in their class, they encourage the whole group of students to participate, and they stimulate cooperation, the integration, and exercises using teamwork. They acknowledge the points of view of the students, and they integrate different perspectives. Therefore, they are able to achieve learning in their students after rigorous interactive exercises.

Finally, this category includes the code-named organization for work, which recognizes the teaching knowledge related to organization and systematization [26] and in addition the methodological rigor in addressing the contents and activities of learning. When recognizing that a teacher was organized and strict conveys the idea that the teacher was meticulous in her mastery of her subject and carefulness when delivering topics, in an attempt to be faithful to the contents of the discipline and the level of learning that is demanded.

9.4. Teaching knowledge: good attitudes of the teacher

This category encompasses the codes that are related to the personality traits belonging to the teacher, which are integrated to their knowledge; here, there is an example which is very commonly expressed to be a characteristic of good teachers: their kindness, which enables them to connect with the students; their smile, the joy to be teaching in the classroom; and their
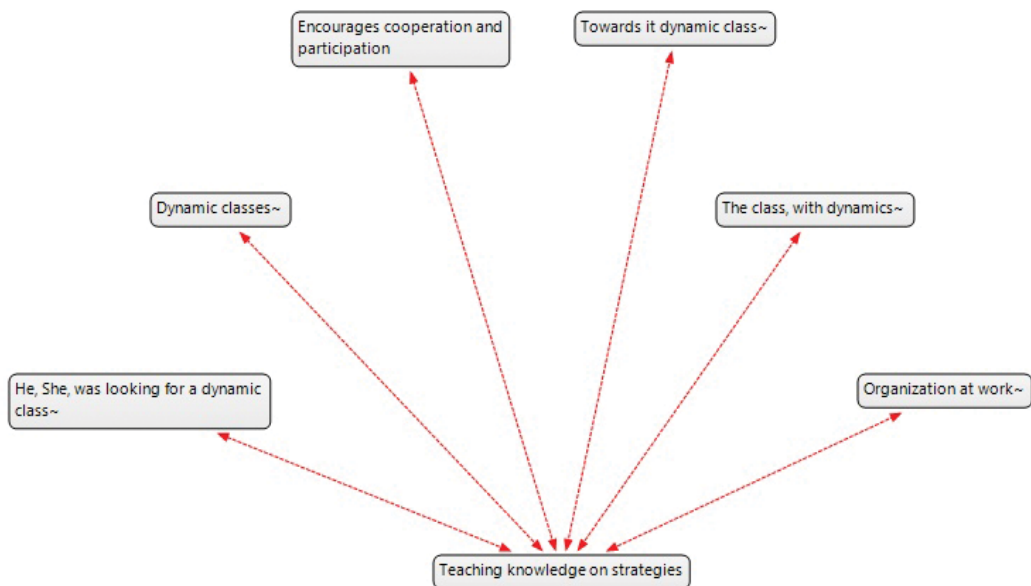
Figure 3. Category: teaching knowledge—strategies.

expression of good attitude and spirit of service toward the subjects of learning. Kindness and a friendly treatment create favorable conditions for the learning environment and the relationship among peers in class [11]. When the teacher treats his or her students with kindness, they will be in a condition to learn better. Likewise, this category reflects an affectionate condition present in very good teachers, who offer trust and warmth in the relationship between them and their students [39], which leads to friendship relationships between the students and the teacher, without them affecting or demeriting the professional function of support and educational facilitation from the teacher (**Figure 4**).

Good attitude of the teacher as a category also alludes to a personality feature on behalf of the teacher toward his or her professional functions, the good attitude, a willingness for service, a capacity for patience, and to be polite, demonstrating and encouraging all the time a positive personality that facilitates the participation of students and motivates them to express their own ideas and proposals in class. The good attitudes of memorable teachers will be an encouraging factor for the disposition of students toward learning of their subject.

Finally, the category establishes a feature of good teachers, the level of trust that they have gained from their students, which manifests itself mutually and denotes a personal passion on behalf of the teacher for the good academic performance of their students [37]; this trait in a good teacher is perceived naturally by the student and gains their trust.

9.5. Didactic knowledge

This crucial category defines outstanding teachers and memorable teachers by their distinctive nature. They all have as a strength a great didactic knowledge [38]. Didactic knowledge is
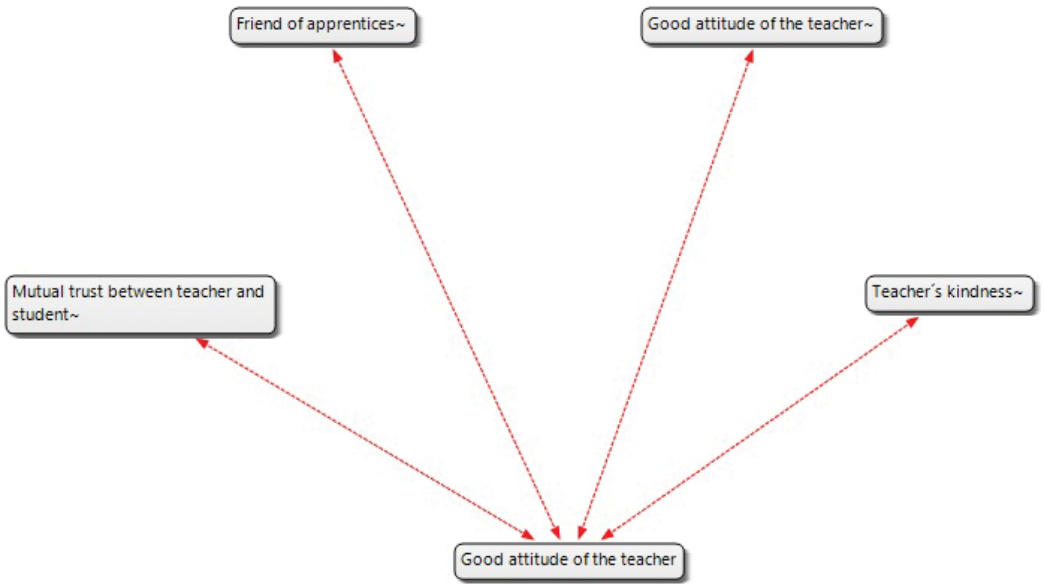

Figure 4. Category: good attitude of the teacher.

understood as the mastery of a teaching method or techniques for addressing learning objectives. They know how to put arguments forward, to show, to demonstrate, to experiment, to expose, to make conclusions, and to synthesize knowledge with the appropriate usage of auxiliary, material, or technological resources (**Figure 5**).

This category distinguishes itself from the knowledge on strategies that has already been mentioned; the former is concerned with ways to articulate or coordinate learning activities. Didactic knowledge, on the other hand, is not a particular knowledge to coordinate different strategies, but is a knowledge on how to conduct in an all-inclusive manner the process of teaching; the category includes a constant practice on behalf of memorable teachers, offering pedagogical or staging help in the disposition of resources or gradual exercises for each type of student as he or she requires them [17], and although, as it has already been established, didactic knowledge is concerned primarily with knowing the application of methods and procedures, it is also related to the application of teaching strategies in a creative manner, giving freedom to the students to display, with learning autonomy and their proposals, and developing the learning activity creatively.

Creativity in the classroom represents innovation and development of thought in order to find optimum results through different pathways. This category also refers as to how good or memorable teachers make use of fun or entertaining resources that make a class session pleasant and enjoyable so that learning becomes an engaging activity for the student [23].

There is another concept or code which has been included in this category which has been named *pedagogical care*. This code refers to the attention and care given to reach a goal and achieve learning in the performance of the student; it involves a professional trait of focusing
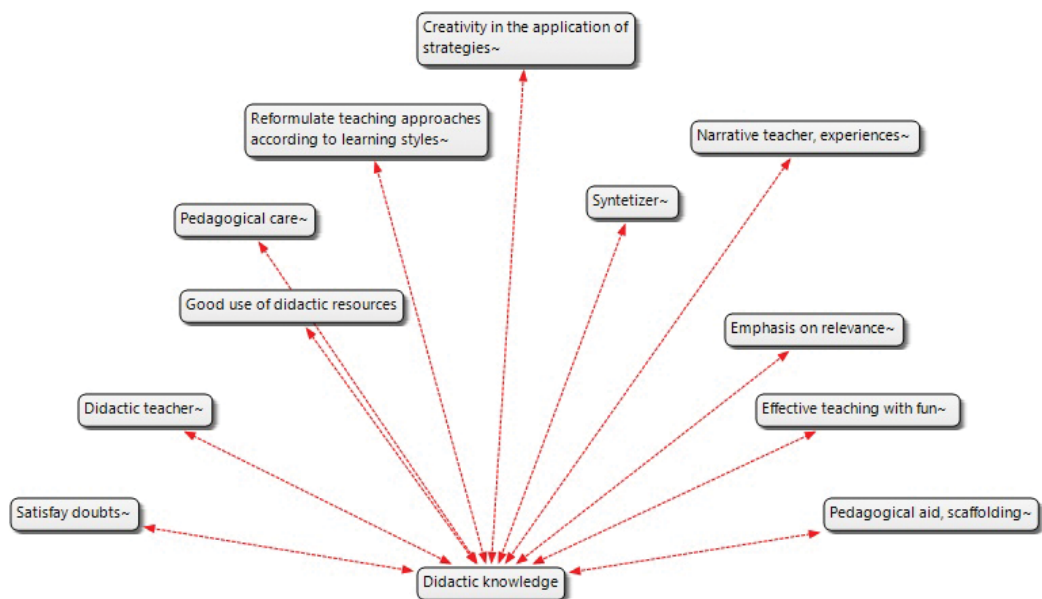

Figure 5. Category: didactic knowledge.

attention on the student and on his or her learning needs; it requires listening attentively, to provide help and resources, to explain again topics more than one time if needed, to go over the exercise again with the student, etc. It is also included in this category the *emphasis given to relevancy* as a separate code, which constitutes a practical teaching knowledge that refers to the ability of the teacher to connect the learnings and knowledge proposed to the students in the classroom, with real-life applications and current events. Relevancy in learning is always present in the teaching knowledge of good teachers, and they will use this tool often.

On the other hand, the didactic knowledge category includes a code that has been named *narrative teacher* [33], which describes a type of teacher that shares, through the use of pedagogical narratives, his or her life experiences, which then become learning scenarios for their students; in this sense, each narrated scenario is linked and supported by the employment of the imagination in each of the minds of the students, and, hence, imagination and learning take place in a didactic situation [24]. In addition, other codes belonging to this category involve the synthesizer teacher, where it is recognized as a valuable teaching knowledge the ability to offer a synthesis of the activities that took place and the topics that were addressed in integrated and summarized manner, establishing a complete vision of what was covered and learned. This way, the students presented with a panoramic vision of the session and are able to capture elements of learning that could not have been presented in a segmented fashion or were not fully comprehended when covered individually.

In addition to knowing how to make use of didactic resources appropriately, an important code to highlight this category is *teaching knowledge: reformulate teaching approaches according to different learning styles*. This code comprises teaching knowledge on behalf of teachers who are dedicated to and expert in what corresponds to an ability to personalize teaching strategies in accordance with the different styles of learning that students display. The reformulation of teaching approaches, made on the fly, reveals an expert teaching knowledge which can be developed changing teaching styles and adapting them to the circumstances of the level and style of learning that corresponds to the student.

9.6. Teaching knowledge: planning and evaluation

This categorization is constituted of five codes or concepts that refer to a kind of technical and pedagogical knowledge closely related to the management of the process of teaching-learning, that is, the planning and evaluation of class sessions by the teacher, [40] where the teaching knowledge of organization and systematization are highlighted, together with the methodological meticulousness when addressing the contents and activities of learning (**Figure 6**).

The category, teaching knowledge: planning and evaluation, was created after narratives affirmed that teachers were good, organized, and strict which reveals a certain mastery of the discipline and carefulness when teaching it on behalf of the teacher, always attempting to be faithful to the contents of the topics and to the level of learning that is demanded. Hence, this corresponds to the systematization and design of each session of classes; the richness of the design and planning of each class is revealed in sessions rich with information, resources, materials, graphics, ordered sequences, systematizing and closely following the objectives and goals, etc.
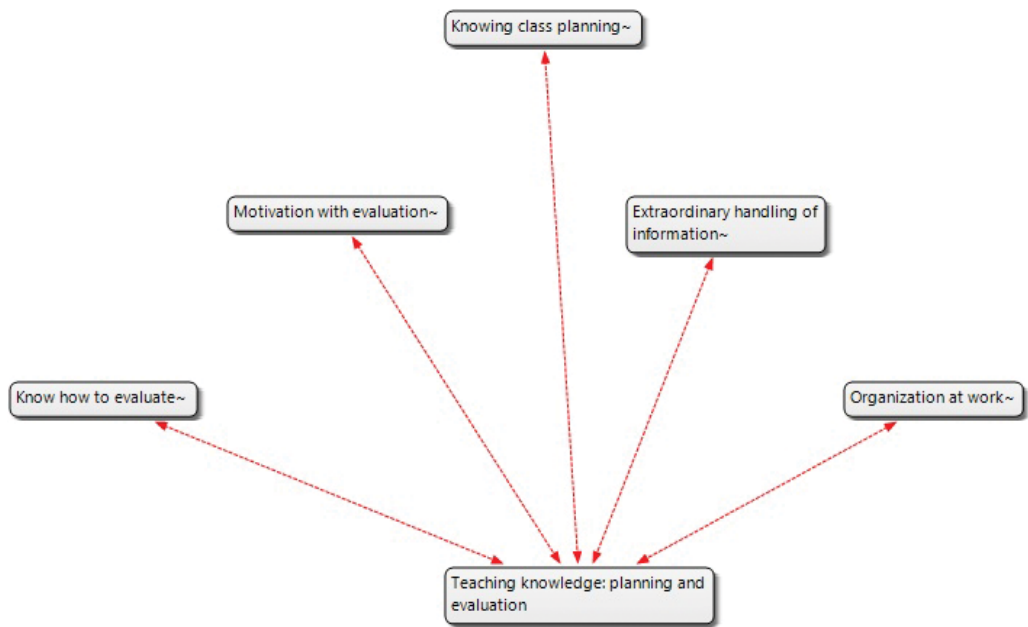
Figure 6. Teaching knowledge: planning and evaluation.

The students value this kind of professional knowledge, which represents all the teaching technical and professional works previous to the class session, namely, to the pedagogic planning. Additionally, this category expresses a valuable ability that is perceived by the students on behalf of their good teachers, that of a teaching knowledge that is exceptional, and the ability to know how to properly evaluate and leave their students satisfied, to the point where the students recognize the objectivity and fairness of the mechanics and procedures of evaluation employed by good teachers. This expert teaching knowledge, knowing how to evaluate, illustrates how the said evaluation process always becomes an active learning process [40].

Finally, as part of this category, the code refers to the ability of the teacher to manage and organize the information and contents presented to the students. This skill is displayed by very good teachers, helping them gain the admiration of the students and being taken as an example when appropriating the said content.

9.7. Teaching knowledge: rigor-format-tidiness

This category is comprised of four codes that involve the knowledge of demanding strict adherence to the method, to the discipline, and to the format with accuracy and style. According to this category of teaching knowledge: rigor-format-tidiness, teaching is a strict process in terms of raising the quality standards of the work being presented in the classroom. Consequently, very good teachers or memorable teachers are not involved in pedagogic practices where laxity and slackness are part of the development of learning activities (**Figure 7**).
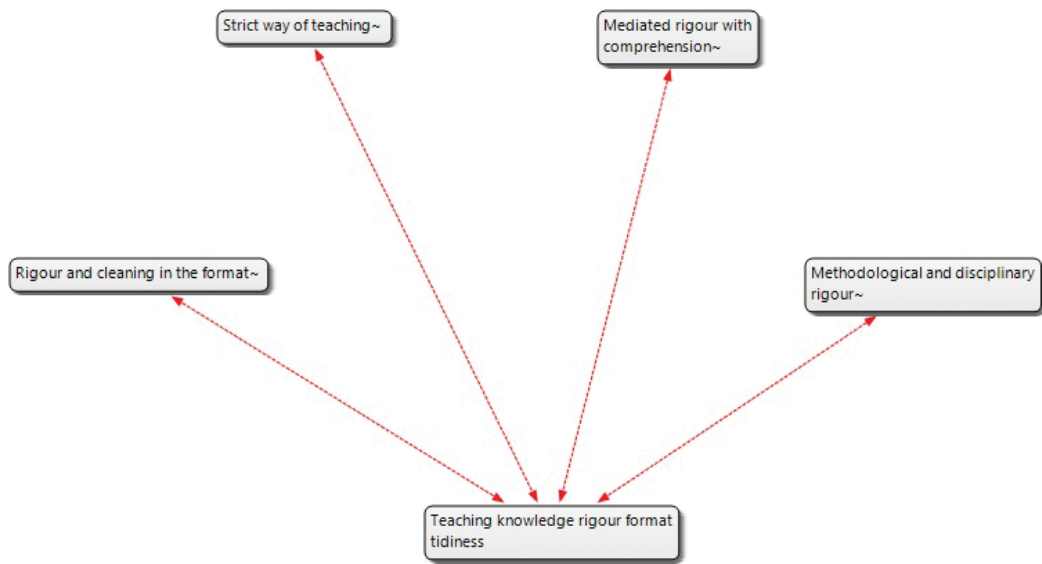
Figure 7. Category: teaching knowledge—rigor-format-tidiness.

In this sense, according to the category being analyzed, lax teachers, lacking in rigor and discipline in the teaching process, are shown with little regard by the students, and hence there is a positive recognition to strict but effective approaches to teaching, mutually agreed on by the teachers and their students, where discipline and rigor in teaching are expressed in good teachers as being "a strict teacher" and this without having any sign of disapproval. However, another code that belongs to this category points to a teaching knowledge that revolves around being rigorous and strict toward the execution and performance of a learning activity but at the same time provides understanding and resources that will help the students; this articulated knowledge is proper to very good teachers and is thus recognized by students in this category.

In addition, as part of this category, there is a summary of systematic practices that are adjusted to a precise method, followed by a procedure and rigorous system [30]. Furthermore, it is considered as a mastery and execution of solid disciplinary knowledge, an ample scientific preparation, beyond any doubts and following common sense. The teacher is recognized for his expert knowledge [41], with two kinds of well-defined rigor: the methodological and that concerned with the subject. Finally, a code in this category refers to the competency of tidiness and carefulness in the elaboration of learning exercises and activities keeping a clean and precise format; good teachers strictly demand cleanliness and adherence to the format in learning activities, and excellent knowledge should not only manifest itself in terms of content, but also present itself in the tidiness of format.

9.8. Teaching knowledge: human-patience-comprehension

This category addresses a knowledge to assign value that is profoundly pedagogic [20]. It is a knowledge of comprehending the human condition; it touches knowledge on the emotional realm from the teacher, and the students recognize the kindness and comprehension of memorable teachers, in accordance with the following codes (**Figure 8**).
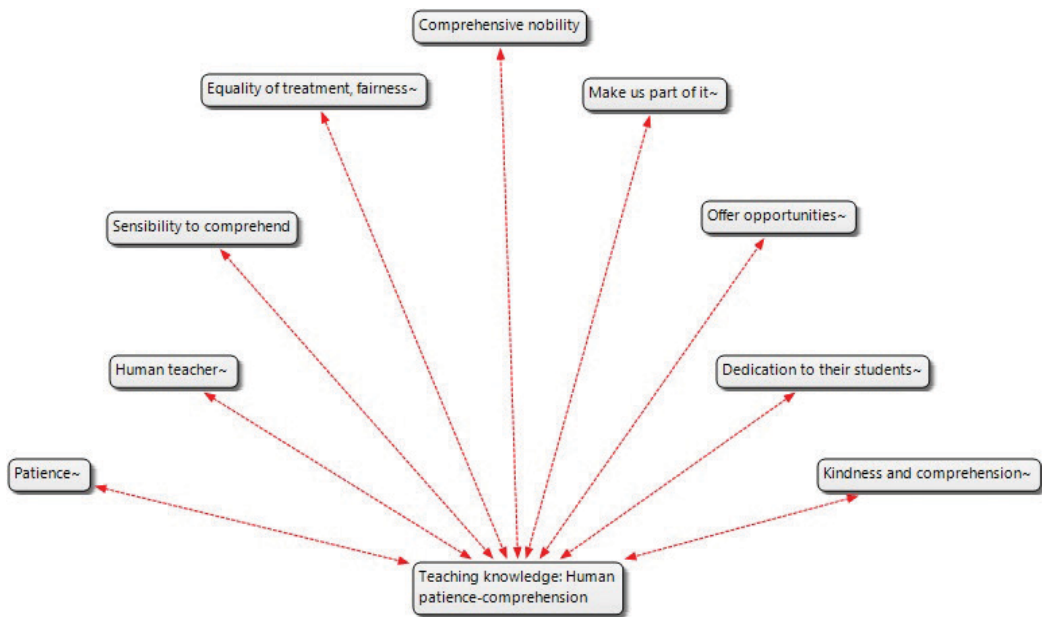
Figure 8. Category: teaching knowledge—human-patience-comprehension.

Offer opportunities: This code represents the openness, patience, and kindness of good teachers for whom there is no lost student or that is incapable of learning. These attitudes to help and offer solidarity to the subjects of learning [29] are features of an optimist teacher who is convinced and believes in the possibilities of improvement, in the results of the learning process of any student.

Dedication to their students: The dedication of a teacher to their work is a background trait that refers to the learning practices that are performed using extra time, and because of that, they define the dedication of memorable teachers. The students value this devotion to their duty on behalf of good teachers as they understand that this extra time could be spent by the teachers with their families or to themselves and hence this extra effort by teachers is highly by students as part of good teacher's dedication to work.

Equality of treatment and fairness: This code alludes to a good teacher being a figure of justice and authority in the classroom. The teacher must treat all the students with justice and equality; indeed, it is all lost if there is a great pedagogue in any disciplines, but which is no longer recognized by the student because he or she received an unjust treatment in the classroom. Academic justice and equality of good teachers, in terms of values, are the crown jewels of the professional competencies.

Making us part of it: This code involves the pedagogic principle which is put into practice and takes into account the students and their learning needs. Teachers owe their work to students, and they are the reason for being a teacher; therefore, making them part of their designs considering their opinions, preferences, and points of view in the learning process to achieve good results is a feature of memorable teachers.

Kindness and comprehension: This code refers to the attributes given by the students to teachers that have good feelings, good and kind teachers who offer the best of their knowledge and teaching work to their students [39].

Patience: Patience is a teaching virtue and in this code is defined as an attitude favorable to the learning process, to be willing to wait and to take the time for a paused and detailed explanation, waiting and accompanying the learning rhythm of the student and using words that calm and appeal to temperance—*try one more time, don't worry, take a calmed look*—patience is a true gift of teaching.

Humane teacher: This code involves the ability of memorable teachers to be in an active disposition to listen and to show empathy to their students; to first understand and then comprehend their students, comprehension and empathy are essential for meaningful coexistence and warmth toward their students, to feel together with them part of them in a learning community [20].

Finally, there is the code named *sensibility to comprehend*, which is closely related to the other codes of the category to conform in this humane pedagogical knowledge and value them in the order of comprehension.

10. Conclusions

This last section deals with the summary of results yielded by this study and answers each of the questions put forward and the objectives set before:

a. The categorizations that were found in the 28 narratives provided by the students enrolled in the Faculty of Pedagogy at the Universidad Veracruzana in Mexico and which give meaning to the teaching knowledge of memorable teachers, presented in a decreasing frequency, are the following:

- *Didactic knowledge (12)*

- *Teaching knowledge: humane-patience-comprehension (9)*

- *Teaching knowledge: ability to explain—gift of teaching (7)*

- *Teaching knowledge: strategies (6)*

- *Teaching knowledge of memorable teachers (specific) (6)*

- *Teaching knowledge—planning and evaluation (5)*

- *Teaching knowledge: rigor-format-tidiness (4)*

- *Teaching knowledge: good attitudes of teachers (4)*

b. The teaching knowledge of memorable teachers, which left a mark in the lives of their students in terms of this research, were expert disciplinary knowledge, didactic abilities, dedication, kindness and great heart, and additionally the intermediation between rigor and comprehension for the students.

c. The teaching knowledge implicated in the learning process of different subjects, proper to the technical-professional realm, are present in the categorizations: didactic knowledge, the ability to explain: gift of teaching, teaching knowledge: strategies, teaching knowledge: planning and evaluation, and teaching knowledge: rigor-format-tidiness.

d. Generally, in the narratives and the categorizations that were constructed, bad teachers are conspicuously absent; no one remembers them by their names and last names—*and, hence, they are not memorable*—and only appears in one categorization; that of teaching knowledge: rigor-format-tidiness, in some narratives, lax and lacking on rigor teachers are reported as being bad teachers because they did not achieve significant learning in their students.

In the future, it will be necessary to conduct deeper research in terms of what constitutes expert teaching knowledge and in relation to specific didactic abilities; in addition, more extensive research is needed on the topic of how to mediate between rigorous teaching knowledge and that oriented toward comprehension and emphatic abilities on behalf of teachers.

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Case Studies as Unconventional Meanings

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Additional information is available at the end of the chapter

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Abstract

The critical exegesis of the epistemology of educational science illustrates various narratives: postmodernist views on educational sciences, links between pedagogy and the politics, dialogs between education and culture, counternarratives, critical pedagogies, etc. These reflect an intellectual space that incorporates various constructions of knowledge: different experiences, fragmentation, transcultural changes, divided borders of educational sciences, conflicts, and unifying themes. This chapter is focused on the Romanian case study in the schools playing a role in developing recent pedagogy. The qualitative research presented in this chapter is based on an investigation conducted from 2014 to 2017 at the University of Bucharest. The target population consists of 300 students in teachers training, and 446 teachers, psychologists, and school counselors who were invited to report case studies on learning topics in accordance with their personal experience. The empirical research aims to explore the Romanian possible identity of case study about learning issues and to discriminate the qualitative features of the data collected. The results are considered mentalistic structures of a case study. In these structures are included learning strategies, life styles, learning styles, teaching styles, communication styles, level of rationale involved in case studies as storytelling, and remarkable' patterns of social network from the classroom.

Keywords: case studies, qualitative research, best practices, communication, classroom management

1. Introduction

The meta-analysis of the educational literature in the workfield reveals the perspective of multi-literacies: pedagogy theory, education studies, education research, practices in education, pedagogy in education, etc. As a consequence of these multiple discourses, there are various categorizations in the function of different theories (causes) conducting to hybrid

educational links (effects). The educational epistemology inserts and develops multiple explanations about the knowledge in the field of education. The data collected reflect four types of explanations:

a. Epistemological explanation,

b. Historical explanation,

c. Etymological explanation,

d. Contemporary explanation.

The most used explanation is dependent on the etymological perspective: the term "pedagogy" is connected to pedagogue, a Greek slave accompanying the child on his way to school. The time distance between Greek antiquity and the sixteenth century, when imposed pedagogy is important and are negotiated polymodal explanations. The rhetoric of epistemological explanation is related to knowledge and to different cognitive models of science (linear, nonlinear, shifting, etc.):

• Is it about the education sciences?

• Is it about pedagogy or about education research?

• Are questions with ambiguous meanings in the dominant literature in the workfield?

From the vantage point of historical pedagogy could be analyzed in a fragmented way the scientific discourses: these are phases detailed by various thinking schools adapted to multiple cultural links. The key terms demonstrate a shifting identity of the education sciences: "pedagogy theory," "pedagogy in education," "teaching pedagogy," "pedagogy of poverty," "pedagogy of hope," "pedagogy of the oppressed," "pedagogy of multi literacies," "andragogy," "pedagogy of higher education," "pedagogy in primary school," "digital pedagogy," "online pedagogy," "traditional pedagogy," "radical pedagogy," "pedagogy in curricular discourses," etc.

Education wording depends on the globalized society, by finances, by ICT, by news in communication and in STEM, and by the multiform negotiations refined into such different educational systems (USA, France, Italy, Spanish, Romanian, German, etc.). The following table exemplifies the most important epistemological questions in the field of educational sciences in this age of supercomplexity (**Figure 1**).

This chapter investigates case studies in terms of contemporary pedagogy. Worldwide, the researches describe the potential solutions for the traditional classroom structures. The theoretical wordings on the quality of education reveal disparities in educational opportunities or inadequate capabilities. The chapter is based on an approach in relation to Romanian curriculum and contemporary learning cultures. The influences from the vantage point of constructivist, sociocognitive, and sociocultural perspectives evidence a gap between the new learning cultures and the classic views in the field. There is no doubt that the challenge in Romanian education is connected to the challenge from the society. A case study implies discerning between various capacities of the target population: capacity for analysis and synthesis; problem solving; teamwork; capacity to learn; capacity to adapt to new situations; concern for quality; capacity for organization and planning; sense of maturity; thinking abilities; and so on.

Questions	Possible Epistemological Answers
Towards a polymodal world?	Critical pedagogy
Linking education to cultural studies?	Cultural pedagogy
Linking education to learning environment?	Educational psychology
A pedagogy for life?	Lifelong learning
Towards excellence in teaching?	Teacher education
A bound pedagogy?	Hybrid educational sciences
Towards reconstruction in education epistemology?	Multiliteracies pedagogy
Rethinking recent pedagogy?	Cases studies

Figure 1. Questioning educational epistemology.

In many educational systems, case study [1] served for disciplinary content knowledge. Currently, we live in a measuring culture. Assuming this hypothesis, the contemporary Romanian case studies involve new knowledge, skills, and experiences both from the part of the teachers and students.

Case studies are discussed in the literature as knowledge context-dependent [2]. Rhetoric on case study delineates the meanings [3], the identity, the categorizations, the analysis procedures [3], and so on. From the perspective of the critical exegesis [4] based on research methodology [1], it is important to specify the continuities and discontinuities concerning the camps of fieldwork. There are varying approaches implying polarization of paradigms: case study versus survey; questionnaires versus case studies; qualitative versus quantitative; objective versus subjective; numerical evidence versus textual evidence; and probabilistic versus opportunistic. Within this paper, the meaning of case study includes a continuum [2, 3] delineated by various understandings: an event, a situation, an individual, a method, an approach, a narrative, and a learning problem. This understanding is related to an epistemological explanation of case studies, the philosophical questions of the issue. The "sophisticate" attribute of the approach resides in an authentic combination of different kind of methodologies [1], theories, and paradigms. Assuming this hypothesis, the case study is a concept defined in contrasting points of view [2]. When taking into account, the dialog between learning and curriculum [3], it is about the intrinsic case study. Instrumental case study means using case study in order to clarify the Romanian identity of learning problems. The huge number of different data (cases) collected provides that a research could be considered as a collective case study. To conclude, a research is very complex, combining opposite paradigms. These involve exceptional documentation, atypical design of the research, and special effort to capture the educational reality.

The research is based on a personalized design of investigation and takes into account both subjective and objective data. Beyond the review of the literature in the fieldwork, this approach has been conducted in terms of longitudinal study over time within the University of Bucharest during the period between 2008 and 2017. The stages of the research could be delineated by the followings steps:

- The pretesting stage (from 2008 to 2009) using students as target population;

- The pilot research (from 2009 to 2010) using students as target population;

- The research itself (from 2010 to 2012) when the respondents were teachers, psychologists, school counselors, and students from the University of Bucharest;

- The stage of test-retest (from 2012 to 2017) using students as participants.

Because of the supercomplexity of the research, the target population was involved in realistic, relevant, and explicit tasks. For example, over time, the tasks were focused on various situations [2]: recognizing the case study; reflecting on the case study; reporting the case study; assessing (measuring) the case study; solving the case study; selecting a case study from the Romanian press; comparing case studies (from different levels of education, from different cultures, from different thinking school or trends in the field, etc.); delineating the principles of case studies; evidencing practices; identifying case study applications (in education, in social sciences, in neuropsychology, etc.); giving specific examples; and clarifying implications.

Apart from the analysis of the studies published as a result of the investigation, this paper examines the data collected in the confirmatory stage of the research. Equally problematic as the demands of the approach were the nature and the extent of the investigation beyond the academy. It is about the SOPHRD/87/1.3/s/63906 project on learning issues. This wording critically presents the qualitative materials collected in the project in order to cover the requirements according to case study. The target population consists of 300 students in teachers training, and 446 teachers, psychologists, and school counselors who were invited to report case studies on the topic of learning in accordance with personal experience. The objectives of the research are as follows:

- To explore the Romanian culture of case study about learning issues (ethnographic part of the investigation in order to clarify the culture of Romanian case study);

- To examine the typical features of the data collected (psychological level of the investigation).

From the 446 participants in the project, 400 narratives were collected from the answers; 360 case studies were selected in terms of the topic. Only 300 narrative exercises are considered "master narratives" and are measured in a scientific way. From 300 students in teacher training were collected 290 narratives, and 200 were considered scientific discourses. As a consequence of these explicit requirements or theoretical considerations, the findings are literally based on 500 descriptions of the learning discontinuities in schools.

There is a Romanian educational reality that could be examined by the following thematic and linguistic structures (**Figure 2**):

> 1.Personal or individual case study
>
> 2.Organizational case study
>
> 3.Case study as interpretations of cultures
>
> 4.Case study in terms of leadership practices
>
> 5.Case study as school-community interrelationships
>
> 6.Case study as a story (piece of literature)
>
> 7.Case study as a problem to solve
>
> 8. Case study as general considerations on the topic
>
> 9.Reconsidering the task
>
> 10.Semiotics as a result of previous generalizations
>
> 11.Personalization of case study
>
> 12.Example of wording on learning problems
>
> 13.Cases selected from foreign educational systems
>
> 14.Case study as a narrative explanation
>
> 15.Case study as shift in discourse defining pedagogy
>
> 16.Case study as making inferences
>
> 17.Case study as action research
>
> 18.Case study as specific knowledge

Figure 2. Categories of analysis.

In terms of ethnographic research, the collected narratives offer a "natural" manner to look at the Romanian learning problems. The findings could be interpreted according to the following typical discourses; each type of situation is illustrated by a significant example:

(a) Personal or individual case study

"B. I. is a student in the fifth grade, is part of a family with reduced material possibilities. The parents do not have stable jobs, and the family income is represented by the grandfather's pension and by the children's allowances. (B. I. has a brother in the first grade in the same school.) He is diagnosed with ADHD by the psychiatrist; his intellect is at the limits of normalcy, has low interest toward school activities; he has not promoted in Romanian and in French classes on the first semester."

This discourse details the aspects relating to the socioeconomic environment of the student's family, the family structure, and typology. The highlight of the parameters from the perspective of a psychological and educational process give consistency to the case portrayed. It is a narrative about the individual case of B.

(b) Case study as a story

"A 11-year-old student, comes from an orphanage (the children's home). Departing alone from school, unattended, and neglected (he does not do the homework). Mother visits him from time to time (at the beginning of the school year, at the end of the semester, and at the end of the school year) arrives late to classes, often is not prepared for lessons; has no writing instruments, books, and exercise books. He is encouraged by his colleagues to learn, to play together but without any echo from his part. Many times, he is given as a negative example by the teachers, because he does not do the homework."

(c) Case study as a problem to solve

"The case study is about a student in the fifth grade in danger to have to repeat the fifth grade. At birth, he was abandoned by his mother—who was then 18-year-old—and his father is not known. He was taken into care by a lady who knew his natural mother. Subsequently, she christened the boy, becoming his godmother. The boy has been educated by his godmother and her husband. It is necessary to mention that his godmother and godfather never had children and were quite old when they got him. They try to offer the boy everything. He meets the natural mother, but he refuses any relationship.

The boy is overweight, and when he entered the school, he became the target of offenses from the part of classmates; sometimes, even from the part of the teacher. In the second semester of the fourth grade, he has been moved from his class to another class because he refused to activate in the same collective. He was emotionally affected, offended, and marginalized. In the fifth grade, his godfather died, and he was supervised and educated only by the godmother. Shortly, he became violent: he hit a colleague with a chair in her head and used violent language with the teachers.

Now, after the event, he refuses to come to school and his godmother is saying that he should not do that and not knowing what to do. The boy stays at the computer all day and does not care about anything."

Compared to most of the collected narratives, this case study is different because it offers a history of the problem and delimits the causal relationships.

(d) Case study as general considerations on the topic

"(The case or the student) might be

- extremely selective because he learns only subjects that she/he likes;

- low interest toward school (maybe it is about other rewarding mechanisms; for example, prizes obtained from a concern for artistic order);

- a child going through a family trauma, which remains unknown for the school environment [5];

- maybe it is about a child who was not taught to learn and face a particular difficulty of learning and is not able to solve the learning problem;

- a student with an upside down value system."

Narrative descriptions are based on the dissociation of the core features of the weak student from the vantage point of learning; the wordings are adding psychological delineations strictly in each sentence.

(e) Reconsidering the task

"Weak student in learning:

- is low motivated intrinsically;

- the parents of the student are not involved in the activity of the child or the parents' educational constraints appear manifested by unrealistic requirements that causes demotivation;

- (the student) has negative relationships—in family, in school, and from the vantage point of social perspective, in general—which generates labeling of the student;

- from the economic perspective, the conditions of the family are around average;

- the parents are divorced or separated;

- the whole educational activity of the student is at surface, inconsistent, and poor."

The writing correlates the motivational aspects of the case with relationship, environmental, and performance issues of a Romanian prototype. Some of the research participants associate the task with the portrayal of a weak student in learning, which could be considered a routinized or "soft" view. The wording is comparable with any of the similar case study presented in the global literature in the fieldwork.

(f) Semiotics as a result of previous generalizations

The student with low performances in learning:

- "is absent;

- disturbed constantly working overtime because he does not understand;

- seeking justifications and guilty for his failure;

- defies the teaching framework;

- develops family conflicts;

- disorderly behavior;

- trying to impose by force or by power in front of colleagues;

- low extrinsic motivation;

- choosing to evidence himself by negative activities or by dezaptative modes (e.g., smoke);

- lacking self-confidence;

- manifesting the need of affection and valorization."

The wording includes two parts: the first part details the profile of the student, while the second part outlines the features as a result of generalizations. In terms of personality, it is delineated

as a contradictory image: assertive or unassertive, extrovert or introverted, educated, or igno-rant student. The consequence is the fact that there are very numerous cases in schools. The dichotomic structure acquires a whole dimension by connecting various cognitive genres of the narrative: cognition, social cognition, moral cognition, and meta-cognition.

(g) Personalization of case study

"George is a student in the fifth grade, coming from an authoritarian teacher that managed the classroom all the time. In this class, apart from the primary school, George works with many teachers and sometimes he does not understand the tasks. During the classes, he plays with personal objects and disturbs the colleagues. He is helped by a school counselor that explains to him the rules and the discipline requirements. At home, he is establishing for himself the rules and the program, but he does not assume the workloads in school or at home. He becomes attentive and cooperative only if his mother is called… George needs permanent control."

This narrative is a mini essay in which the causes to learning deficiencies, daily problems, and exceptional circumstances are presented. The end of the case adds a conclusion, an educa-tional diagnosis, and a suggestion for the student' educational therapy.

(h) Example of wording on the learning problems

"The student that has learning deficiencies:

- is constantly bothering hours or is always dutiful;

- has poor social relationships or develops conflicts;

- comes from a family where relationships are in trouble and parents do not encourage the child to learn effectively;

- the claims of the parents are exaggerated or the parents are indifferent to the style of educa-tion and toward the outcomes of the student;

- (the student) has no motivation toward learning;

- (the student) can have difficulties of understanding the educational content;

- (the student) is contaminated by the negative cultural models;

- (the student) is part of a group in which the beliefs and the principles are in disagreement with the education and personal development;

- (the student) is in need of understanding the topic and educational support all the time;

- (the student) has cognitive gaps and fluctuations of attention;

- (the student) needs affective attention;

- the behaviors could be outside social rules;

- in the classroom, the child might be marginalized or stigmatized."

From the vantage points of linguistic and semiotics, the narrative is structured in the form of seen traits; in terms of educational and psychological perspectives of the portrait as a whole.

(i) Cases selected from the foreign educational systems

"An Egyptian student aged 12 years was physically assaulted by a teacher because the student was not doing the homework at home. Aggression has resulted in the death of the student. The Ministry of Education from Egypt decided that the school located in the neighborhood of Cairo must close until the completion of the case. It is necessary to mention that the regrettable event took place on the 5 March, and the pupil's death occurred on the 8 March… The case is inextricably tied to race violence… It is known that people who live in a violent environment most often adopt an aggressive behavior."

The case is connected to the state conflicts in entire Egypt and to behavior theories.

(j) Case study as a narrative explanation

"I choose this case because it has created a situation that tends to become a habit to a certain category of schools in tertiary education.

Unfortunately, the Romanian schools can be divided into two categories: (1) very good schools and (2) very poor schools. In the second category, the most important cases are those of violence which, even if they differ from one from another, are about the same causes.

In the present case selected, two students from a high school listen to music during the mathematics class. Such cases have multiple causes:

• lack of education on the part of parents,

• the absence of communication between parents and their children,

• the educational deficiencies of students,

• lack of interest from the student and parents toward learning,

• the promotion of negative patterns in society (the model of dishonesty),

• because the school is currently talking about the students' rights without detailing the students' obligations."

The wording is focused on explanations; the case identity consists in explicit sentences about the situation—problem.

The critical exegesis of the multiple case studies is based on the key features of the case study. The most important areas of case study are grouped into classes or categories by exploring between:

• strength of reality and repeatable problems;

• attractive metaphor and scientific description;

• "hard data" and impressionistic data.

2. Analysis and discussion of the results

As it is illustrated in the findings, each case is a piece of reflective written text that could be discussed as cultivating communities of practices. The discourses are categorized as follows:

- explanations about a specific process;

- answers giving details concerning features of the reality of education;

- structures logically sequenced for a relevant problem;

- tasks (pieces of work or of an activity).

In terms of explanations, the cases are often complete, clear, and unambiguous. The target population narrates the response without difficulty. As answers, the texts remind that the communicative competence of the teacher is important. The frequently asked question is related to the teacher as a "co-communicator" because of the achievement problems. Our discussion is not based on gender-role stereotypes. Taking into account the sociocultural diversity, the collected data argues the necessity to delineate various students with achievement problems:

• students with failure syndrome developing self-handicapping strategies,

• students interested in protecting their self-worth by avoiding failure,

• students who procrastinate,

• perfectionists students,

• uninterested or alienated students.

The analysis of the cases demonstrates that there are different realistic problems, including these in the following examples:

• nonperformance,

• underestimation of learning task,

• students with negative, self-damaging thoughts,

• students with low motivation, with support, or undercut motivation,

• cases about high anxiety and constant worry,

• unrealistic expectation achievements,

• students promoting behavioral diversions,

• apathetic students, uninterested in the learning process,

• problems with high pressure because of the social comparisons,

• students dramatizing or ignoring the learning tasks.

The exegesis illustrates the students typically characterized as students with achievement problems, but a special concern could be the issue of socioeconomic status, dealing with

behavior problems, or the climate of the classroom. The cases are stories about chaotic class-rooms, communication, motivation, relationships, and sociocultural contexts. It is necessary for the teacher to currently reflect on goal-setting activity and on the plan to teach. The following comments are important for the excursus (**Figure 3**):

The collected observations reflect the wide range of psychological principles and educational orientations explaining the facts. The case studies narrate about managing the classroom behavior and the individual behavior; presenting directly aggressive style, manipulative style, passive style, assertive style, or active style promoted by the members of the Romanian educational communities. The classrooms described by the target population are different social groups called permissive, aggressive, authoritarian, chaotic, authoritative, or demo-cratic classrooms. These give the reason to develop reflective programs to train teachers in order to understand the processes of solving problems, cultivating collaborative work, and researching the best Romanian practices. It is dangerous to establish algorithms of feedback in the classroom without preparing teachers to create their own classroom rules. Despite the fact that the violence is a major problem in schools, a good management strategy might be able to combine authoritarian style, face-to-face style, offset style, seminar style, and cluster style.

Features of the semantic network provide a substantial amount of emphatic elements, social and emotional intelligence, and gestures. The messages are coded or not, but the variables of

Explicit and Implicit Perspectives on the Task

"The school is a lab... It depends on the teacher to be positive, to influence and to communicate. "

"There are various conflicts in Romanian schools. The examples are presented in the press."

"The sellected case is about violence in school. It is a very complicated situation because of the behavior problems involved."

"The case is about the lack of the strategies to managing the tasks in the classroom from the part of the teacher."

"The teacher's relationship with the psychologist and with the manager of the school to solve the case. The strategies and the techniques to be adopted are well examined by the team."

"The case relates the situation of an adolescent beaten by his four classmates in a Romanian Secondary School. The punishment applied to the young boy could be compared to a horror film."

Figure 3. Reflections and issues: a summary.

communication differ in the function of the aims. A number of barriers or communication limits, misunderstandings, and psychological distortions are typical for the semantics analyzed. The antagonist cultures of the players involved in the educational process are indicated by the vocabulary. The lexical is "clear," "truth," connected to "learning landscape," "direct," inherently including the symbolic representation of educational problems. Different aspects of language from the data collected may explicitly prove that the findings are re-lexicalizations of putting into relationship the human spirits. Some different cases should be considered as a transfer of human agency from the contemporary society to the learning space. It may be about the observation of social codes in educational contexts.

It is impossible to reflect upon case studies without considering the social mental aspect that is being communicated. Educational communication working practices gain meaning because of the network that links cultures, thoughts, and words; communication is a condition of contemporary social people, but it is an effect that creates links between people. As a result of interpreting the findings from this perspective, the potential explanation refers to the social kaleidoscopic of school life. Anthropological linguistics regard state learning practices, mentalistic structures of the cases, learning strategies, life styles, learning styles, teaching styles, communication styles, level of rationale involved in case studies such as storytelling, "remarkable" patterns of social network from the classroom, etc.

In terms of educational communication, the narratives are dialogical forms of knowledge and are logically linked to innovations in education. Various members of the educational communication socialize, exchange meanings, send and reframe messages, relationships, influence each other, rethink solutions, etc. The critical exegesis of the case studies collected indicates that its linguistics forms are closed to news press or Internet styles. All the patterns of conversations found on socialization networks (Yahoo, Facebook, and mobile phones) as well as the representation of the case studies in terms of tacit knowledge involves interpersonal elements and social semiotics. Concise and accessible narratives are connected to the plurality of voices from the press: the language illustrates ways of coding social values, consensus and contradictions, and conversation and transitivity. The linguistic structure of storytelling confirms the schemes of modality: terms such as "with regret," "should," "may," "fair," "correct," are consistent details of descriptions. The model of educational communication is very much depended on syntax, terminology, contents, and dynamic of interaction (as in news) through cases. Educational communication becomes an interaction between people, intra-, and inter-groups (students, teachers, staff members, educational decision-makers, etc.). From these interactions, it is possible to delineate options of participants, new assumptions, connections with theories, and a new cognitive map of the ideational functions.

The communicative interaction from stories looks into the terms of disagreement presentation. There are many varieties of negative communication configurations. This means (**Figure 4**):

The cognitive representation of the whole map of communication as a result of the research could be drowned by the following patterns: a few normal teacher-students relationships, huge disagreements between different groups of students, people insolated from the educational organization, adverse effects of the mechanical confrontations between different tribes or cultures, a negative agency in the schools reflecting the conflicts from the entire society,

"a negative map of communication (in family)"

"a negative image of the classroom as an organizational system"

"fight between the two student groups as well as between the teacher and the students"

"many tensions between the students and the teacher"

"the social relationship from the classroom is illy"

"the fact that in this map of communication the teacher is isolated from the classroom"

"the best learners from the class don't communicate with the rest of the students"

"a negative brotherships (between the students)"

"the formal norms used in schools and the informal norms of the students which are at war"

"the negative classroom atmosphere, the moral of the students which is low and the affective resort of the students is downgraded"

Figure 4. Content analysis of negative communication.

contradictory norms, etc. It indicates subjectivity, new logical relationships, different geometrical configurations of social dissonance [3], liaisons of both—deontic and epistemic authority, socioeconomic troubles, new power manifestation in society and in school, etc. This new register emerges from the borders between the official discourses on education and —paradoxically—implicit ,dialect, educational communication. The changes of status and roles of the educational community members are reflected in the immediate linguistic context. This demonstrates that the map of educational communication shows different levels of motivation, tensions, different needs, various distances adopted in communications, a renegotiated truth of discipline in classroom or in school, etc. Some of the written narratives showed thematic statements that were identified (**Figure 5**):

"the distance between the best learners and the worst learners are huge"

"there are incorrect positions of peers to the smartest learners"

"the educational climate is influenced by the social network"

"it is a negative coallition"

"the smartest learners are minoritars"

"it is about the power reproduction and its result is frustration"

"the relationship is based on domination"

"uncommunicativity and frustration are the most important characteristics of the case"

"the psychological dimension of the classroom is ambiguous"

"the implicit norms are more important than the official rules"

Figure 5. Example utterance connected to observational categories.

Some of the writings focus on the operational dimension of the classroom: the need of strategies, principles, techniques, or any mechanisms to solve the case. There are specified different "surviving techniques or measures," "domination principles," "stress," "risks," "confrontations," "negative attitudes toward one another," "divergent behaviors," "revolt toward formal authority," "unfriendly relationships," and "ambitions." The language of the case studies reflects a rigorous sociometric exegesis of micro-social picture. This image, of reject each other, is contrary to the normal classroom. All the cases are related to classroom management, educational communication, assessment, educational psychology, educational sociology, and educational counseling and suggest new critical reflections in order to establish new connections between the fields that contribute to conceptualizing learning. A new pedagogy as a hybrid entity could produce new methodological guidelines for new needs of education. Traditional approaches of the educational groups as well as the creative steps of engaging students in learning could solve the sophisticated educational situations collected in the present research.

Following the scientific conventions that aim producing rigorous and credible research, the data collected have been analyzed both in terms of descriptive and explanatory case studies. The literature of analyzing case study contains various strategies: logic models, explanation building, process and outcome evaluations, cross-case synthesis, and rival explanations. The theoretical positions of this research design (systematic requirement of case study investigation, results, validity, relevance for generalization, sensitivity, etc.) are convergent with communication literature initiatives based on cross-case synthesis and rival explanations. The data collected indicate a sophisticated social network of educational case studies. The systematic analysis of narratives indicates the following qualitative cross-synthesis: classmates' relationships; educational communication in school; outside school interventions, community illness (as values, attitudes, relationships, etc.), features of the educational atmosphere, etc. The case study analysis demonstrates the heterogeneity of multiform risks: risks of replicating the identity of bad or even the worst human agency in everyday life, the risks of disturbing communication, the risks of amplifying confrontations between groups, the risks of "soul" pain, etc. The results are interpreted from two viewpoints: educational communication paradigms—synchronous and asynchronous—and the words as indicators used by the target population to describe or to explain the cases.

The reflective nature of learner and learning require exploring alternative ways of lesson planning and instruction. The categories and outcomes for design instructional objectives could evaluate how well the teachers work: knowledge, understanding, application, thinking skills, general skills, attitudes, interests, appreciations, and adjustments. Helpful guidelines for future managing classroom behavior could be used differentiating between social and scientific attitudes; between personal, educational, and vocational interests; or between social and emotional adjustments. The design lesson takes into account various ways of thinking—creative, critical, and caring thinking.

Not surprisingly, the amount of writings covers the assumption about the interdependence between minds and cultures or about models of minds and models of education. The narratives are ways of thinking about the conception regarding the mental abilities of learners,

teachers, and parents. The effort to analyze the data is an active interpretation of facts, attitudes, expectations, behaviors, meeting of minds, thoughts, professional practices, beliefs, and perspectives on human understanding, spatiotemporal meanings, etc. The chapter starts with a classic expression of the problem going to intersubjective-objectivist understandings of the case study.

There appear several sides of learning in the discourses:

• Behaviorist dysfunctionalities,

• Cognitive recombinations of the reflections,

• Constructivists conceptual structures,

• Social learning interactions.

This exploration of the data collected by contemporary learning cultures produces explanations about both mental processes and "making meanings." For individuals, communities, and organizations, the learning is important in order to generate a shared experience.

A consequence of the target population's differential way of responding to the task is the wide range of discourses. Several respondents mention in a visual way the problem from the case; images are powerful. Another writings are correct procedures to represent the potential achievement of a pupil. Several narratives detail the cultural context of the cases. Some cases are descriptions of daily situations from the classroom—drawing the hesitant, the unmotivated, the anxious, the dependent, the untypical, or the poor learner. These views reject the universal commodity of understanding the case study as a turbulence in transition. In contrast, the issue of ethnicity, the home-school relations, the identities of the school, and the special educational needs are all themes presented in the examined descriptive profiles, requiring conventional and unconventional discussions. The case-data are untheorized situations about values, cognitive styles, and the curriculum.

The research is a unique approach on the Romanian curriculum, based on a very complex investigation, risky for the researcher (because of the Romanian Eastern countries' social problems), and proving a problematic image of the reality. Each case is both a metaphor and a truth and the knowledge is context-dependent. Most of the cases reported are explained by social dissonance [3]: the counter-cultures of the families, of the schools, and of the society. The discussion is complex because values, beliefs, ethics, attitudes, and behaviors of those involved are antagonistic. Interpretive analysis of the data requires multiple dimensionalities [1, 2] of the data collected—psychological, didactical, sociolinguistical, logical, and open-ended strategies. The multiple sources of evidence could be connected to the human agency in the classroom, in the school, and in the society. As an educational situation, each case study is a classic representation of student life, classroom life, or school life; as a human agency, the inflexible practices suggest the lack of cultural synchronization between educational process players.

From the vantage point of linguistics and semiotics, the words inserted in narratives are related to various functions of educational communication [2, 3]. The words from the data collected

are considered ways to express meanings. One of the most widely used analysis in case study relates to semantics as the study of meanings of the words. In the context of this investigation, it is necessary to explain that case study refers to the definition from literature [1] and semantics. This is important because it is in line with denotation (as emotional overtones of case study) and its connotations (as nonexplicit meanings).

The critical analysis of the case studies has revealed that words are linguistic entities giving sense to verbal messages. For example, most of the titles of the cases presented by Romanian press contain key knowledge important for the changes of the information in the society: "without education, without future" interrelate social and educational perspectives. The words are tools of educational communication with a role in expressing thinking, knowledge, feelings of those involved, and features of the educational environment. Discourses are logical systems of sentences, phrases, and meanings describing the educational reality from poliphonic views: philosophical, psychological, and social in a constructivist or in a postmodern way, etc. Words are signs that enable participants in an educational environment to organize communicative roles. This approach has the potential to deal with linguistic relativity given the social context of language.

The wordings from the findings could be considered an example of a particular discourse community, an educational discourse distinctive by the fact that the problems of learning are the most significant resources to explain interactions between students, teachers, educational staff, parents, inspectors, press, etc. Changes in meanings are inserted in the descriptions of the cases. In terms of linguistic analysis product, the formal question concerning the presentation of case studies maintains the cognitive system of the target population. "Control area," "confrontations," "limits of the educational situation," "opposite rationales or arguments," "lack of communication," "barriers", "real problem", "problem-solving", "rebellion", "judgments", "dispute", "fight," "refusal/denial" are words demonstrating that the descriptive style relocate meanings in a new social agency. There are speaker-learners, speaker-teachers, active speakers, neutral speakers, critical speakers, etc. Linguistic equipment is closely in relation to counter-cultures from the educational space. In such circumstances, social dissonance [3] is sustained by a new property of linguistic competence: formal and informal mental heritage is reconstructed in a new habitual social language. Literature in the fields contains various theories according to agency: mechanical agency (agents and objects), actional agency (agents and action), and cognitive agency (agents and attitudes). These conventions are included in the exegesis. Empirical explanations of target population indicate a new common sense of a new moral agency in the classroom (**Figure 6**).

There are connections to the moral curriculum, to the classroom management as a moral activity, to the direct and indirect moral instruction, to the moral atmosphere from education (e.g., sociomoral atmosphere in the class). In terms of micro-level indicators, the written communications contain signs that reflect distributed cognition, moral cognition, cultural models, conceptual brands (multi-literacies), gender issues, technical steps of communication or classroom management laboratory (e.g., prototypical schemas and subschemas or subsets of knowledge stored into memory). These lead to intersubjectivity and interactivity
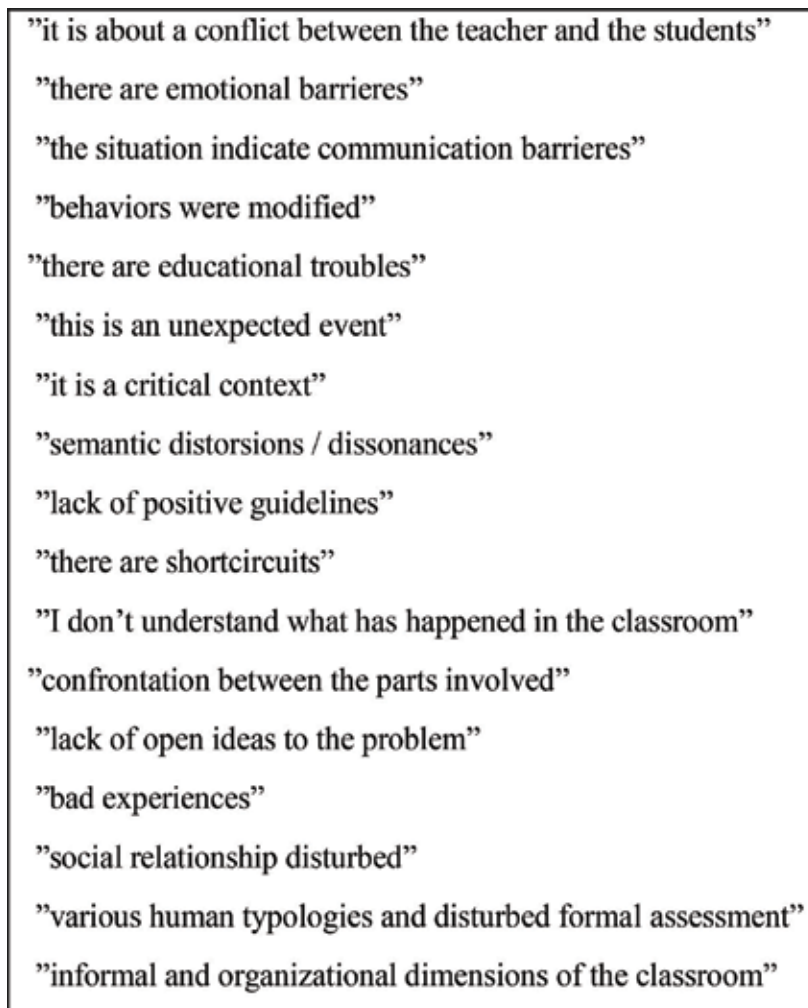
"it is about a conflict between the teacher and the students"

"there are emotional barrieres"

"the situation indicate communication barrieres"

"behaviors were modified"

"there are educational troubles"

"this is an unexpected event"

"it is a critical context"

"semantic distorsions / dissonances"

"lack of positive guidelines"

"there are shortcircuits"

"I don't understand what has happened in the classroom"

"confrontation between the parts involved"

"lack of open ideas to the problem"

"bad experiences"

"social relationship disturbed"

"various human typologies and disturbed formal assessment"

"informal and organizational dimensions of the classroom"

Figure 6. Countercultures: types of response.

in communication and to mental representations of behavior involved. The construction of realities within cases uses words as ingredients of language: there are interactions between peers, between parents and students, between community and school, between educational staff and press, mass media effects and students, between students and teachers, and between organizations.

The framework of micro-paradigm suggests some formal structure involved within cases' identity: "un-pleasant," "guilty," "incident," "bad," "worst," "beaten," "unsatisfied," "fight," "disturbed," "broken," "fear," "tensions," "pressure," "mistake," "contradictions," "myth," etc. The qualitative analysis of the texts reveals multiple images of social dissonances. The theory, research, practice, and evaluations of education from the texts reflect the appetite of

the respondents to consuming science. The verbal statements are connected to the story from the case study. The following example is in relation to the epistemology of scientific argument: "A shocking incident was in Motru. A student throws himself on the window because of bad marks in biology." The rhetorical point of the case is related to canonical methodology providing explicit questions, using scientific tools, arguments, and adapting professional protocols.

Beyond this dual analysis—micro-level indicators (e.g., word and sentence) and macro-level indicators (structure of the case study as linguistic text)—the research offers a multiplicity of strategic level of communication: social communication, organizational communication, educational communication, philosophical communication, mathematical communication, institutionalized, and noninstitutionalized communication. The results could be linked to a diversification of theories or adapted models of meta-discourse and discourse: structure and content stories, narratives style, and their educational implications, gender and written communication, learning as a symbolic and social process, intertextuality in case study, semantic and structural constraints of educational comprehension, etc. The cross-sectional exegesis proves that there are inserted demographic variables (age, gender), risk perceptions and risk behavior, personality characteristics (emotions, moral cognition), motivations, skills, beliefs, educational constraints, persuasion, etc. In many cases, there are inserted terms that exemplify correct and incorrect interpretations of classic and contemporary theories from the fieldwork. The results reflect the various schemes of communication from different perspectives: rhetorical, sociocultural, phenomenological, sociolinguistics, semiology or semiotics, ethnography or ethnomethodology, psycholinguistics, etc. The constraints from the conceptual framework on text linguistics are considered multiple textual voices about written academic discourse. Rhetoric from the case studies was based on multidisciplinary approaches: beyond the conventions working adopted in different cultures—discourse analysis, text science, textology, text studies—the results confirm the research questions about Romanian culture of case study with a particular identity.

Most of the contradictions lead to hostility, victimhood, poverty, intergenerational differences or conflicts, suspicious gipsy versus diplomatic white persons, etc. In these terms (of synchronous and asynchronous communication paradigms), the linguistic material can provide strategic analysis of the educational phenomenon as well as a multimodal exercise.

There are various educational ideas. Among conclusions or lessons to be learned, these must be expressed as follows:

- The study cases are expressions of the changes arising from the cultural context. In numerous educational systems, there are various learning cultures.

- A possible version of varied meanings of the case study take into account the idea that cases are inherent anomalies of the education policy.

- The longitudinal research serves as a systematic collection of Romanian insights in order to discriminate the distinctive feature of narratives. The symbolic space [4] brings together psychological, educational, sociological, and linguistic resources.

- Because the communities create and transform meanings, the findings could be analyzed in terms of universal models from the literature in the fieldwork.

- Hermeneutic meaning is based, first of all, on the contemporary learning culture. The exercise is clearly linked to curriculum. It is not surprising that there are involved critical issues concerning curriculum planning and development, curriculum management, teaching perspectives, or curriculum ideology.

- The investigation explicitly suggests ways in which the theory and practice interrelate.

- The study cases are complex social issues and the solutions are unpredictable.

- Arithmetic addition reflects the need of different approaches to guide an exemplar research: seeing investigation as problem-solving, a form of "moral knowledge," and "academic subject" based on realms of meanings—symbolics, empirics, esthetics, synnoetics, ethics, and synoptics.

- Most of the cases reported are explained by social dissonance because of the counter-cultures of the families, of the schools, and of the society. The discussion is complex because the values, the beliefs, the ethics, the attitudes, and behaviors of those involved are antagonistic [2, 3].

To conclude, cases studies are meaning systems and unconventional ways to reason about everyday moral issues. The findings are potential premises to establish codes of conduct. In these terms, schooling effects of moral or prosocial development [5], teaching as moral craft, building characters in schools, etc. are parts of a holistic view on education.

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Oral Communication Skills and Pedagogy

Eleni Mousena and Trifeni Sidiropoulou

Additional information is available at the end of the chapter

Abstract

Conversation is the very heart of schooling and pedagogy. In early education, oral language development is particularly significant for interactions, social relationships, and friendships, and for building a sense of belonging. Educators help children develop oral language skills both directly through linguistic interaction with them and indirectly by creating an environment, which is rich in learning stimuli. This chapter aims to establish how educators manage oral language in preschool classrooms and how the implementation of specific approaches has more positive results than that of others. References are made to theoretical approaches of sociolinguistics and ethnography of communication. In this research, kindergarten teachers engage pupils in discussions on the topic of 'Tolerance'. The activities were recorded and the content analyzed according to the qualitative content analysis of speech and communication. The analysis identified constructive interventions with positive results, along with less effective ones, which proved discouraging for children. We suggest that children in early childhood construct meaning and learn in accordance with the ways in which adults manage orality.

Keywords: oral communication, teachers' competencies, communication models, preschool curriculum

1. Introduction

There is no doubt that conversation in the learning process is the very heart of schooling and pedagogy. Children, in their efforts to discover and understand the world around them, continuously ask questions. Oral skills are a crucial factor for teacher-child interactions and children's development of oral language. In early education, oral language development is particularly significant for interactions, social relationships, and friendship, and for building a sense of belonging. Educators help children develop good oral language skills both directly through their language interaction with them and indirectly by creating an environment rich

in learning stimuli. Teachers' oral communication skills are capable of actively supporting curriculum implementation and meeting its goals.

This chapter aims to establish how educators manage oral discourse in preschool classrooms and how the implementation of specific approaches has more positive results than that of others. References are made to the theoretical approaches of sociolinguistics and ethnography of communication, as well as to Fairclough, Vygotsky, Piaget, Bruner, Mercer, Edwards, Maclure, Maybin, Volosinov, etc. The significance of active listening is analyzed as a primary skill for the language development. In addition, references are made to communication models such as the transmission model of communication and the model of interactive communication.

Early education provides many speaking opportunities. Educators develop various activities aimed at language development, such as circle time discussions, teacher-learner routine interactions, reading and narrating stories, developing topics, giving directions, describing pictures, setting rules, and reading public signs.

In this research, kindergarten educators engage students in discussions on the topic of 'Tolerance'. Children are invited to observe, describe, and narrate the story based on related images. In this effort, they are motivated and supported by their teachers. The main goals of the teachers' interventions are children's active participation, staying on topic, and responding to *who, what, where, when,* and *how* questions. The activities were recorded and the content was analyzed according to the qualitative content analysis of speech and communication. The research focuses on two questions:

- Which specific strategies result in children being more productive in oral language?

- Which communication model is implemented by educators?

The main body of this work comprises of three parts. Part I considers theoretical concepts associated with linguistic power and the function of the official language taught in schools as a medium for imposing state power. Emphasis is placed on oral discourse and communication in the school context. References are made to the transmission model and the dialogic model of communication. Part II consists of two sections. The first section considers the issue of orality management in the kindergarten and presents the key principles and objectives of the Greek kindergarten curriculum. The second section analyzes the importance of supporting oral communication in early childhood and the critical role of kindergarten educators to this end. The section also presents the methodology applied for curriculum implementation. Part III presents recordings of classroom discussions on 'Tolerance'. The recordings come from two kindergarten classrooms; they were transcribed and analyzed accordingly by the means of communication content analysis.

The analysis found that each educator develops their own educational strategy that stems from their own personal theory and oral competencies. Constructive interventions with positive results were identified, along with less effective ones, which proved discouraging for children. Features of the more constructive interventions were: the implementation of the interactive communication model, the initiation-reaction-feedback (IRF) rule, a child-centered approach, credit time for children, a positive classroom climate, and the zone of proximal development perceived as an attribute of pedagogical phenomena.

This research attempted to identify how children learn to construct an understanding of the world around them. We suggest that in early childhood, children construct meaning and learn in accordance with the ways in which adults manage orality. It is the authors' opinion that this statement extends the scope of the communication theory of learning in order to highlight the value of genuine dialog in the learning process.

2. Symbolic language and communication in the school context

Oral discourse is the child's earliest medium for knowledge acquisition and exploration of the world. It is the sphere in which knowledge and understanding are developed. Upon entering the school institution, the child assumes the role of student. Although learning to write takes great discipline, learning to speak is a less stressful process. According to Ong [1], writing is learned through concentration or study; rarely does it occur as spontaneously or smoothly as speaking. Through the practice of orality and the educator's mediation, the child assumes the role of subject-student.

The educational system tends to devalue popular modes of expression and impose the recognition of one legitimate language. The systematic learning of the standard language is the first coercion that occurs in the school context. According to Bloomfield [2], the official language imposes itself on all subjects on the territory of a political unit as the only legitimate language, especially in formal situations. As Bourdieu [3] notes, "the official language is bound up with the state… It is in the process of state formation that the conditions are created for the constitution of a unified linguistic market dominated by the official language. Obligatory on official occasions and in official places (schools, public administrations, political institutions etc.), this state language becomes the theoretical norm against which all linguistic practices are objectively measured". As the state's enforcement body for linguistic use, educators have the authority to subject the performance of speaking subjects to examinations and to officially sanction the outcomes.

The form of oral discourse most commonly encountered in educational practice is dialog. The relationship between interlocutors in this process is asymmetrical. The dominant interlocutor has longer turns and is in control of interruptions and corrections, thus putting at stake the subordinate interlocutor's freedom of speech. The register is not necessarily formal but rules of linguistic politeness are generally observed. "Within this context, educators and learners participate in a system of relationships of symbolic power" [3].

The analysis of oral communication in the school context aims to establish the types of conversation, which most promote students' understanding of curriculum content. Most research focuses on teacher-learner dialogs [4–7], whereas learner-to-learner conversation has been addressed by a rather limited number of researchers. Research findings indicate that although students learn from their teachers, they learn better from their peers. The *orality movement* emphasized the importance of oral discourse in the school context. Maclure attempted to specify the concept of orality and its types and to determine which of these types are promoted by the educational system. The four types of orality she identified are: orality for personal development, orality for cultural transformation, orality for learning, and orality for functional linguistic ability [8].

Regarding the systematic research of talk, two models of communication have been proposed. The *Transmission Model of Communication* views oral discourse as a medium for the transmission of information between a sender and a receiver. Although this model is held in high regard in educational practice, it fails to penetrate the complexity of oral discourse [9]. The second model, the *Dialogic Model* [10] draws on Piaget and Vygotsky and their constructive process of discourse. According to the *Dialogic Model*, understanding between interlocutors is constructed through dialog and is shaped by the social and cultural context. Hence, talk is a complete system of cooperative understanding.

The dialogic model is connected to Volosinov and Bakhtin, according to whom utterances and responses constitute a chain of interlinked verbal events [9]. "Bakhtin suggests that dialogues are set up within utterances by our taking on and reproducing other people's voices either directly through speaking their words as if they were our own, or through the use of reported speech". Notwithstanding this appropriation of other people's voices, subjects retain responsibility for their choices [11]. Miller identifies nonlinguistic knowledge, as opposed to linguistic rules, as the main medium for understanding utterances. Furthermore, for effective communication to occur, it is vital that interlocutors wish to be understood. Understanding another person's utterances is a problem-solving process. Lack of cooperation in identifying and solving problems would render language a worthless communication tool [12].

According to Volosinov, words are ideological signs that emerge from the social contact between individual consciousnesses. They are the purest and the most sensitive means of social contact. Their main property is that, despite their interindividual nature, they are produced with the means possessed by the individual organism. Therefore, words constitute the semiotic content of individual consciousness. At the same time, words cannot be isolated from the specific social conditions in which they developed; in other words, they cannot exist as pure natural constructs.

By the same standards, comprehension is viewed as the result of interaction between a speaker and a listener. The nature of true understanding is dialogic. Meaning does not belong to a word itself, nor does it reside in either the speaker's or the listener's psyche. Rather, it is the result of a speaker-listener interaction produced through the content of a particular complex of phones. Like an electric spark, which can only be generated when two opposite poles come into contact, the electricity of verbal contact provides the word with the light of meaning [13]. For Vygotsky, Bakhtin, and Volosinov, language is socially and culturally shaped, and its use bears particular value judgments and commitments.

Conversation is the principal day-to-day linguistic behavior. The *conversation analysis* method was developed in 1970 in order to explore how ordinary daily behavior is perceived. Recognizing the fluid nature of conversation, conversation analysts study the way in which interlocutors perceive structure and coordinate their behavior so that effective verbal exchange can exist.

The key concepts of *conversation analysis* are coordination and collaboration. The operation of these concepts resembles that of nonverbal communication. For example, when one person wishes to give an object to another person, the outcome of the action is dependent on the two persons' collaboration. Participants in verbal communication behave in a similar way. Their behavior is familiar and predictable in its structure so that a communicatively successful outcome can be achieved.

3. Orality in the preschool curriculum

3.1. Key principles and objectives

Primary education curricula on language explicitly acknowledge that effective verbal communication can be stimulated by implementing appropriate strategies. The main objective is to enable students to use situation-appropriate language and to build critical awareness of linguistic uses and functions. The key principles of the cross-thematic curriculum are child-centeredness, active learning, exploratory learning, group work involving action and talk, and the teacher's role as co-explorer or mentor.

The Greek kindergarten curriculum on language focuses on the gradual acquisition of language and knowledge by encouraging the exchange of messages. Communication permeates all the learning domains of the curriculum, facilitating an interactive and multi-sensory learning process. A holistic approach to language is adopted which views language as an integrated whole comprising of speaking, listening, reading, and writing. This approach is based on *continuity* theories, according to which oral and written speech exist on a continuum [14]. Curriculum designers examined language curricula from other European countries and took into account research findings [15–17]. According to these, kindergarten can play a crucial role in preventing school failure, which, for young learners, is mainly associated with unfamiliarity with linguistic aspects of written discourse, as is often the case with children from unprivileged educational and social backgrounds. Furthermore, the curriculum drew on the Nuffield Science and Humanities Curriculum projects implemented by the British Schools Council in the 1960s and 1970s [8].

Admission to kindergarten inevitably means that new demands are made on the verbal communication the child has developed within the family and the wider social context. At this stage, family literacy plays a decisive role. According to the Greek Interdisciplinary Curriculum Framework [18], diverse communicative situations are created in the kindergarten classroom to encourage children to talk in order to:

- Narrate

- Describe

- Explain and interpret

- Participate in discussions and implement basic reasoning

- Improve and enrich their verbal communication

- Acquire phonological awareness.

Verbal communication in kindergarten does not exhaust itself in intentional pre-planned activities. Rather, it is a universal, unscheduled process of child-to-teacher and child-to-child interaction, which occurs during all curricular activities. Through oral communication, children learn to adhere to adult conventions [19]. They are taught to participate in discussions, taking turns as speakers and listeners. They learn to listen without interrupting their interlocutors and to speak at the right moment taking into account what has been said. Listening refers to the child's ability to follow spoken stimuli. It is an active, systematic, and productive

activity. According to Stasinos [20], active listening is regarded as critical to the development of all linguistic skills.

A major skill which should be developed is *active listening*, which constitutes a complex parameter of communication rather than a natural effortless hearing process. According to the Speech Communication Association, *listening* is the process of receiving and assimilating ideas and information from spoken messages. Effective listening encompasses both the literal and the critical understanding of information and ideas, which are conveyed through oral communication [21]. Listening is an active process. It is a conscious choice and it can be learnt. *Listening culture* can improve through memory improvement exercises, knowledge acquisition, and deliberate listening actions. At the same time, the listening process can be hindered by the listening subjects themselves. This is often the case with listeners who do not really listen but pretend to do so, selective listeners, and self-centered listeners who consider themselves the center of each and every transaction or activity [21]. Preschool children fall into the last category: their mode of thinking is typically self-centered [22], and pedagogues are called upon to handle this tendency.

Listening is probably the most important dimension of effective verbal communication. Its pedagogical value lies in the fact that in the early stages of learning, children tend to understand more easily by listening than by reading. Through listening, learners are exposed to a broad spectrum of experiences, which help them develop their linguistic potential. Active listening skills promote information collection, evaluation of situations, empathy, acceptance of persons and ideas. In addition, listening can provide pleasure. Nonetheless, despite its key role in communication, listening remains the least taught of all basic skills.

Preschool education and care provides ample opportunity for children to develop oral communication. Various activities are implemented to this end, such as:

- Free announcements and discussions during circle time.

- Routine teacher-student interactions.

- Reading and narrating stories.

- Elaborating on various topics.

- Instructions and rules.

- Describing pictures and posters.

- Describing objects and events.

- Describing fictional or real portraits, for example, Ms. Owl; Maria's grandmother.

- Role-play.

- Interviews.

- Reciting poems.

The aim of the language curriculum is twofold. On the one hand, the curriculum focuses on the development of language as a distinct learning domain. On the other, it views language as a

tool for approaching the other school subjects. Humanities and educational visits to cultural sites provide opportunities for children to understand the world around them. According to Wyse et al., there is factual evidence that historical understanding develops as a direct result of speaking, through immediate discussion and observation. In order to build a class which includes a variety of speaking and listening activities related to different kinds of discourse, one must admit that there are different kinds of knowledge, teaching, and learning [23].

3.2. The educator's role in curriculum implementation

Children's avid interest in knowing the world around them is a major incentive to learn in early childhood. Learning presupposes the existence of: (a) a safe environment, which is rich in stimuli, and in which children become active, explore, develop ideas, and construct knowledge and (b) forms of interaction with peers and adults (scaffolding), which influence children's linguistic and mental abilities.

International education bodies stress that priority must be given to active, experiential, and collaborative learning. Teaching language differs significantly from teaching other subjects. Nevertheless, since language is directly related to human thought, it permeates all learning domains. For this reason, the implementation of the communicative methodology for teaching language can help produce positive learning outcomes. The two axes that constitute language, vocabulary (concepts-meanings-words), and the organization of vocabulary into meaningful combinations by means of grammatical and syntactic structures, should be taught communicatively.

The influence of sociolinguistics and applied linguistics on teaching methodology has led to the connection of language as a school subject with the concepts of *communication* and *communication situation*. The linguistic system is part of a socio-cultural theory, which defines the parameters that affect linguistic use on different occasions: participants, social context, topic, and function [24]. The sociolinguistic background of each learner in the classroom plays a crucial role in the learning process. Language variation is associated with diverse socio-cultural backgrounds and it is identified, analyzed, interpreted, and exploited [25]. The *communicative method* is adopted in language teaching. According to it, all parameters of language teaching start with learners using the language and are aimed at improving linguistic competence. Children should be able to gain an insight into the mechanism of linguistic function and to practice its diversified use so that they can achieve the desired communicative outcome in each communication situation [26]. According to the communicative approach, superior or inferior linguistic forms do not exist. Indeed, linguistic superiority is a fallacy, which is not based on scientific findings. It is also a misconception, which can have pedagogically disastrous effects by promoting linguistic and social inequality in the school context.

Language is the main tool in the learning process. Especially for preschool children, verbal communication and play are the chief modes of expression and the tools that help them learn and develop. During play, children talk to themselves and their peers. Language becomes a means of making friends and sharing the imaginary worlds that children create. Play itself is enriched through language. Its scope extends, making it more complex, and diverse. Nonnative

children try to speak their friends' language so that play can occur. On the whole, during play, children build their linguistic skills [27].

The adoption of specific *teaching practices* is an important issue, given that pedagogues, both as former students and as teachers, come from a text-centered system of developing and teaching language. According to research, classroom time occupied by students' oral discourse is extremely little. Classroom observation and analysis leads to Flanders' [28] law of 2/3, according to which 2/3 of school time are occupied by someone speaking, 2/3 of this time is occupied by teachers speaking, 2/3 of this speaking is a monolog, etc. Educators are role models for oral communication behavior both as listeners and speakers. It does not follow, however, that the teacher's discourse should be the dominant voice in the school classroom.

According to Montessori, a good kindergarten teacher remains silent, giving children ample time in order to develop their own thinking and talk. A good teacher knows how to stand in the wings, allowing students to develop their verbal communication with them, and most importantly, with their peers. He or she provides *scaffolding* to promote learning, gradually passing power, knowledge, and autonomy from themselves to the students [29]. The purpose is to encourage children to build a community and develop communication relationships, rather than participate in teacher-learner communication based on question-response sequences. Educators and other adults in the school environment can serve a significant role in students developing orality.

In this respect, teacher effectiveness is associated with the teacher's use of language. In addition, it is related to the educator planning discussions, respecting students' language, and helping them to realize the value of conversation. For any student to express themselves, it is imperative that the school invite them to a learning community through diverse communicative situations. The existence of scenarios is instrumental in engaging students in conversation. In order to express themselves, preschool children must have something to say; they must feel welcome to participate in conversation and be adequately supported by the teacher.

Being a role model for students, the educator plays a crucial part in the process of communication and dialog. As Friedrich notes, educators can obstruct dialog with their actions. This usually occurs when the educator commands, threatens, preaches, criticizes, makes negative comments, advises too much, swears, ridicules, insults, or forbids. In contrast, the teacher can promote dialog when he knows how to listen and observe, identify and understand emotions, make clear, comprehensible and reasoned announcements, conduct symmetrical dialog with students, and when he or she is genuine in the communication process [30]. According to Fairclough, "the development of children's language capabilities should proceed through bringing together their existing abilities and experiences, their growing critical awareness of language, and their growing capacity to engage in purposeful discourse" [31].

4. Classroom discourse analysis

This section analyzes two classroom discussions in which kindergarten educators intervene with specific strategies in order to promote oral communication and support children's attempts at self-expression. The discussions come from a research conducted in six randomly

selected kindergarten classrooms in Athens, Greece. Due to the size of the sample, the results cannot be extrapolated. The analysis focuses on two questions:

- Which specific strategies result in children being more productive in oral discourse?

- Which communication models are implemented by educators?

The teaching aid used was the 1995 UNESCO poster entitled *the United Nations Year for Tolerance* (see Appendix A). Selected to introduce children to the concept of diversity and engage them in discussion, the poster is a conceptual representation of tolerance and appreciation of social and cultural diversity. Persons and their facial characteristics are represented by colored shapes, elements which preschool learners are already familiar with. Building on this pre-existing knowledge, the educator aims to communicate the central idea: that, besides differences, there are also similarities between people, and that the latter carry greater significance and are related to universal values. With their teacher's assistance, students are asked to observe, think about and present their ideas on the topic. The analysis of the recorded discussions is presented below, highlighting the communication strategies employed by teachers in order to meet curricular goals (For transcripts of the discussions see Appendix B).

The first educational practice involves the educator presenting the poster and asking the students to observe it. Clear short questions and exclamatory utterances are used to encourage students to actively participate in the learning process: "Which ones are round? Come and show us", "Ah! What's this round thing here?", "Wow! That's a little round nose". The prompt "Come and show us too" results in children's involvement and active participation in the learning process. Children respond, observe, and express themselves, while the teacher reconstructs their responses, communicating the intended meaning: "Although different, they're all little mouths, aren't' they?", "So, kids, we can see that all these little people are different but they're all little people, aren't they? The same way that children are different, as we said, but they're all children". This is an effective educational practice in that learners become actively involved in the process, express themselves, and become acquainted with the concept of respecting diversity.

The second educational practice involves a different educational event. The teacher makes a rather abrupt introduction, which fails to offer additional input and create a positive learning setting. The educator asks: "What can you see in this poster?". The students respond each in turn and often repeat each other's response. **S1:** "I can see funny faces", **S2:** "I can see funny faces", **S3:** "I can see funny masks", **S4:** "I can see funny masks". The teacher goes on by asking: "Who can tell me how this masks are made, what do these funny faces have, what do these faces have, and can you imagine how they're made?" This is a long, complex question with ambiguous subjects and multiple desiderata. As a result, children respond hesitantly, uttering one-word responses and copying one another. The teacher's next question contradicts a previous statement: "…to begin with, have we all agreed they're faces?" This causes uncertainty and perplexes students, who do not respond at all. The teacher continues to perplex children by posing an unclear, rather vague question: "What makes you think these are faces and not something else?" Then, she proceeds from the description of the shapes to that of real children, in an unclear manner, further confusing her students: "Kids, guys, REAL kids" and once again she resorts to a double question: "Real kids, what do they have in common and what don't they?". The students fail to respond. Evidently, subjecting preschool children to

unclear, complex, or long questions is not an effective practice. Such questions do not facilitate learners' thinking or expression.

During this educational practice, the teacher rejects the "yes, but…" strategy, which promotes child activation. Instead, she implements negative discouraging strategies. By repeatedly using expressions such as "Of course not", "No", etc., she interferes with any attempt made by the students to think and express themselves. Another discouraging strategy is asking pre-schoolers 'how do you feel' questions. Children at this age rarely use words to express their emotions; it is much easier for them to do so with actions. By observing child behavior, we came to realize that children cannot describe how they feel. It is also highly inappropriate to draw attention to one student's diversity. The reasoning behind respecting diversity dictates that we handle it as if it did not exist, rather than stressing its existence ["How do you feel about Nakis having difficulty, little Nakis is different…", "Nakis is different from you"]. As a general rule, children do not respond to such questions. When one of the students responds "I feel good", the teacher says: "Good. Why do you feel good about Nakis being in our class?". The students do not respond. The teacher goes on: "Does it make things hard for us, does it make us feel good, what, what do we feel?", resulting in students responding "We feel bad". Evidently, the personalization of diversity is pedagogically inappropriate. In this example, such an approach leads to a negative conclusion. In such cases, discussion proves ineffective both in terms of process and in terms of cognitive goals.

5. Conclusion

This chapter considered strategies, which promote the development of oral communication skills in preschool education. Part I considered theoretical and conceptual issues, drawing on the theoretical frameworks of sociolinguistics, ethnography of communication, and the Neo-Vygotskian approach to child learning. Part II presented language development issues in relation to kindergarten curricula. Finally, in Part III, two classroom discussions in the kindergarten were presented on the topic of diversity.

The analysis of the educational practices implemented was aimed at establishing how kindergarten educators manage oral discourse in the classroom and to what extent the application of specific educational interventions produce positive outcomes. Data analysis led to significant findings on the strategies, which promote orality in the kindergarten classroom and established the crucial role of orality development in the preschool learning process. The key role of communication in the kindergarten is reinforced by the learners' age group. At the preschool stage, children attempt to discover and understand the world around them, a process mediated by the teacher's oral discourse. Teaching is a predominantly interpersonal profession and communication skills are inherent to it. For this reason, the authors believe that kindergarten educators must receive both initial and further training in communication skills.

The analysis found that each educator develops their educational strategy based on their personal theory and oral competencies. Constructive facilitations with positive outcomes were established (classroom discussion I), along with less constructive ones, which proved to have a discouraging impact on learners (classroom discussion II). Furthermore, the teacher's weak

verbal communication skills in discussion II meant that the cognitive objective of the activity was not achieved.

Constructive interventions include implementation of the interactive communication model, the initiation–response–feedback (IRF) rule, a child-centered approach, credit time for children and a positive classroom climate. In addition, the zone of proximal development (ZPD) is perceived as a pedagogical phenomenon and not as an individual quality of learners.

The discouraging interventions in discussion II include the following characteristics:

- The transmission model of communication is implemented.

- The zone of proximal development is perceived as an individual property of children.

- The educator mainly introduces ideas without successfully applying initiation–response–feedback.

- Teacher-centered traits are found in the development of oral discourse.

- The educator's authority is more evident.

- Communication among students occurs as a means of emotional support and solidarity within a negative pedagogical climate.

- Negative comments cause children's self-correction.

- The teacher fails to transfer ability to students.

The constructive interventions in discussion I have the following characteristics:

- The dialogic model of communication is implemented.

- The zone of proximal development is perceived as a property of the pedagogical event.

- The initiation–response–feedback pattern of discussion is applied.

- Child-centered traits are evident in the development of discourse.

- Delegation of authority, and therefore, delegation of ability is applied from the school to children.

- Strategies for attracting and keeping students' attention are used.

- Credit time is provided for students to think and express themselves.

- The educator applies "Yes, but…" reasoning.

- The educator poses clear, short open-ended, and closed-ended questions.

- The educator recognizes, confirms, and reconstructs the students' words.

- A positive pedagogical climate is promoted.

- Ability, and thus, learning, is transferred to students.

To sum up, this work attempted to establish how children learn to construct an understanding of the world around them. It was suggested that, in their effort to construct meaning and learn,

preschool children are directly influenced by the way in which educators manage orality. The authors believe that this statement extends the scope of the communication theory of learning in order to highlight the value of genuine dialog in the learning process.

A. Appendix

1995 UNESCO poster entitled *the United Nations Year for Tolerance.*

B. Appendix

The transcripts use the following markup conventions: simultaneous utterances are marked by slashes // and long pauses by dashes ————. Emphatic speech is represented by UPPER-CASE. Unclear utterances are indicated by (…). Omitted parts are marked by […]. Additional contextual information appears in *italic* type. '**Ed.**' stands for 'Educator' while children's names are given in full. '**Students**' signifies that more than two children are speaking simultaneously. For students whose names are unknown, **S1**, **S2**, etc. are used.

Classroom discussion I.

Ed.: Let's see what I've brought you today kids, what's this. Let's put it, where, here.

Let's look at it for a while without talking. ——— So, now, let's talk. I'd like us to.

talk about this poster, what do we see, what's there?

S1: Masks // **S2:** Circles // **S3:** Squares

S4: Triangles.

S5: Round things.

S6: Squares and triangles.

Ed: Which ones are round, come and show us.

S6: (*shows*)

Ed.: Ah! what's this round thing here?

S6: A tongue

Ed.: His little mouth, are the other mouths round too?

S6: No.

Ed. What are the other mouths like, can you show me?

Students: Squares // Triangles

Ed.: Is there anything else round anywhere except the mouth?

S1: Oh! a round nose too.

S2: And one more little nose.

S3: I ———

Ed.: Come up and show us too.

S3: (*shows*).

Ed.: So, I now want us to think about something, first of all we look at the heads, are all the heads the same?

Students: Noooo.

Ed.: Well, what are they?

Students: Triangles // Squares // Circle // Round.

Ed.: These are also not the same, but are they all mouths?

S4: Different

Ed.: Little mouths, although different, all of them are little mouths, aren't they? Aren't you all little kids?

Students: Yeah

Ed.: Are you all the same?

Students: No

[......].

Ed.: So, kids, we can see that all these little people are different, but they're all little people, aren't they, just like we said kids are different but they're all kids.

Classroom discussion II.

Ed.: What can you see in the poster?

S1: I can see funny faces. **S2:** I can see funny faces.

S3: I can see funny masks. **S5:** I can see (…) that are very very funny.

Ed.: Who can tell me how this masks are made? What do these funny faces have or these faces? What do these faces have and how do you think they're made?

S1: With shapes **S2:** With cardboard **S3:** With cardboard.

S4: With shape **S5:** With masks.

Ed.: You've seen these faces, have we all agreed they're faces in the first place?

[…..]

Ed.: What do these three children have in common and what's different about them?

Who wants to speak?

Students: - - - - -.

Ed.: Christina.

Christina: They have different hair.

Ed.: What do they have in common?

Christina: Same shapes.

Ed.: Kids, dear, REAL kids.

S4: Same mouth.

Ed.: What do real kids have in common and what don't they?

— — —.

S1: They have the same trousers.

Ed.: Of course not!

Students: - - - - -.

Ed.: What do they have in common and what don't they?

S2: They have the same nose.

Ed.: No.

[…..]

Ed.: How do you feel about Nakis having difficulty

that little Nakis is different from us and has difficulty in class?

Students: - - - - -.

Ed.: How do you feel about Nakis being different?

Students: - - - - -.

S1: He doesn't listen to the Misses.

S2: We scold him 'cause he's naughty.

Ed.: And how do you feel about Nakis being in our class?

Students: - - - - - Good.

Ed.: Good. Why do you feel good about Nakis being in our class?

Students: - - - - -.

Ed.: Is Nakis different from you?

Students: - - - - -.

Ed.: How do you feel about.

Stella: I feel, o - - - - - I feel - - - - -.

Ed.: We are all different, nobody is the same as anybody else. How do you feel about each person, each kid being different from us?

Students: - - - - -.

Ed.: Does it make things hard, does it make us feel good, how, how do we feel?

S1: We feel bad.

Ed.: Do you feel bad because Nakis is different from you?

S1: - - - - -.

Ed.: Why's that?

S1: Because he annoys us.

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Miscellanea

Is Your Extra X Chromosome Holding You Back? An Insight into Female Education and Academic Careers in STEMM

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Emilia Harding and Catrin Sian Rutland

Additional information is available at the end of the chapter

Abstract

This review discusses whether gender inequality still exists within medical, scientific and engineering academia, with regards to the career development of academic staff. In the 1970s it was suggested that women who are talented and educated with family responsibilities tend to come across problems of self-confidence and identity when attempting to enhance their professional careers, and although many are successful in doing so, others find it more challenging. By the 1990s, it was indicated that the main gender inequality mechanism in academia is the commonly known fact that women's career development in the academic hierarchy is slower than that of men. In the past 50 years, laws and attitudes of many societies, industries and countries, have changed to promote gender equality. What is the impact of these changes, does inequality still exist and what mechanisms exist to address these issues? This review looks in depth at the links between gender equality and continuing personal and professional development (CPPD), in which individuals at work are educated more about the workplace environment and their job roles and performance. The different types, requirements and success rates of CPPD within the scientific (especially medical) academic community is discussed with an emphasis on gender equality.

Keywords: continuing personal and professional development, gender, equality, education, STEMM

1. Introduction

This chapter sets out to understand how continuing personal and professional development (CPPD) can play a role in science, technology, engineering, mathematics and medicine

(STEMM) subjects in academia, especially in relation to career development and progression. For many years, females in STEMM subjects have been less likely to progress through the academic ranks. The first half of this chapter explores whether this has changed over the decades. It also explores the rationale, hypotheses and interventions put into place to try and achieve equality. The second half of the chapter then explores the possible interventions and concentrates particularly on CPPD as a form of pedagogy in relation to both males and females in academia. It also seeks to understand how CPPD can be beneficial and highlights areas that might be problematic and need further development. As far as possible, examples from differing countries are used, but frequently research from Europe and North America are referred to as they have generally undertaken more published studies and reports. Naturally, variations in CPPD exist worldwide; as do the types of CPPD available, career demands and even societal and cultural differences and expectations. Therefore it is difficult to capture all practices within all universities in each country. Literature searches were carried out using PubMed and Web of Science using the following key words: women/female; academic/academia; higher education; STEMM; pedagogy; equality; career progression; gender gap. In addition the same words were used to search the internet for articles relating to the media. Results from January 1960-August 2017 were included.

Throughout this chapter, a number of abbreviations are used depending on the research referenced. These include science, engineering and technology (SET), science, technology, engineering and mathematics (STEM), science, technology, engineering, mathematics and medicine (STEMM), continuing professional development (CPD) and continuing personal and professional development (CPPD). The abbreviation used in each instance reflects the abbreviation used in the reference, otherwise CPPD and STEMM are used.

2. Does gender inequality still exist in academia?

2.1. An insight into career progression

Despite changes to the law to promote gender equality in many countries, there is still evidence that suggests that gender inequality persists in academia. For example in a UK wide study encompassing all higher education providers and the National Health Service, only 29% of academics in science and engineering (SET) were female [1]. This variation differed between the traditional sciences with only 9% female academics in the physical sciences, 18% in mathematics and computing, 28% in engineering and rising to 33% in biological sciences [1]. Just 4 years later, in 2010, this figure had risen to 42% female academics in the SET subjects overall [2]. By 2016, across the STEMM subjects, male academics is were still dominating more senior positions (senior lecturer and above) and female academics were in higher percentages within the more junior positions (lecturer and positions leading up to lecturer). 46.5% of the women were graded higher than lecturer in comparison with men at 64.8% [3].

In the UK, between 1996 and 1997, only 6% of professors in the SET departments were female [4] and by 1999, 9.2% of professors in academia (as a whole) were female [5]. In 2006, an increase to 16% of professors in science were women was observed [1], but by 2010, this figure

had decreased down to 14.5% [2]. In 2016, this number had increased with female professors in STEMM departments accounting for 32.3% of the positions available, despite nearly equal proportions of male and female respondents [3]. It is also interesting to note that female professorial levels in SET departments were lower than that for non-SET departments in 2010, in which the figure stood at 24%, which is still lower than expected as 50.7% of academics in those subjects are female, but higher than the 14.5% observed in SET subject areas [2]. The 32.3% for the UK was relatively high when compared to European figures, which averaged just 13% female professors in STEMM despite higher numbers of females in more junior positions [6].

An interesting exception was observed in medicine (and subjects aligned to medicine) in which there were more female academics and students than academics and students in 2006 [1], but a difference was still observed at the professorial level. Even with the increased number of women in medicine, in 2008, women made up only 11% of the professorial level clinical academics, despite with a 40% graduation rate over the last 20 years rising to a 60% medical school entrance rate of women in 2006 [7]. In 2008, one in five medical schools did not have a female professor and there were only two out of 33 British medical schools with a female dean [7, 8]. Nursing was also considered to be slightly different to the other STEMM subjects as differences between men and women were not frequently observed in all areas investigated [3].

These statistics were mirrored in other countries. In North America, there was evidence that one in three men and one in seven women worked in an SET occupation in academia [9] and women comprised only 8% of the medical school chairs and just eight of 125 U.S medical school deans were women in 2004 [10]. Women in Mexico, by the late 1990s, comprised only 2% of the higher positions in scientific fields, similarly, Austrian women dominated the lower levels or positions, however they only represent 1.5% of the directors of research units in natural sciences [11]. This evidence indicates that in general more men than women possess higher positions in academia within the scientific disciplines. This is not only the case for the countries in the examples given but is generally reflected in other countries too.

2.2. An insight into income inequalities

In addition to the differences observed in career progression, inequalities in salary still exist. A salary gap of 30% between female and male medical academics was observed in the UK in 2006 [1]. The researchers noted that this difference was particularly surprising as the educational requirements and career paths were often similar between the genders, and that only those with full/time continuous employment were included in the study and that this was also much larger than the 17% pay difference seen between men and women in the rest of the UK population (from non-academic careers). In 2010, the overall difference was 18.7% when looking across all higher education subjects [2]. When put into context, this equated to a median annual income of £28,839 for women and £35,469 for male academics. In addition, the proportion of male academic staff earning over £50,000 was 31.7%, over double that of the 15% of females earning above that salary [2]. By 2015, female academics were still receiving on average £6146 less than men [12]. Similar trends were observed in America with young female career researchers (mostly doctoral graduates) paid nearly a third less than their male counterparts [13] whilst female workers in general were paid 80% of the total that males were [14].

Differential salaries for men and women were also observed in North America. Studies have shown that men in SET occupations earn $8714 more than women in the same occupations and that in the non-SET occupations men earned $16,391 more than women [9]. Another study noted that a male physician with less than ten publications will earn approximately $96,214 in his first year; however, a woman who is similarly situated would earn $11,691 less [10]. Pay differences are common throughout the world. In 2015, data from 145 countries were assessed and none provided equality of pay for similar work between the genders, with the scale going from 0 to 1 with 1 being the highest score for equality between genders, the top ratio was 0.88 (Rwanda) and the lowest country stood at 0.34 which was Angola, but some countries did not provide data in this area [15, 16].

3. Assessing the rationale and reasons behind inequality

Women compared with men are largely in lower-paying and lower-status occupations in many countries and this results in fewer opportunities for progression. By contrast, the women that are being discussed in this chapter largely have the same qualifications and jobs as the men, therefore this cannot explain the wage and progression differences observed in the research shown above. In the 1980s, it was suggested that "women fail to utilise fully their talents, capabilities and interests in career quests which is one of the main reasons why women's career behaviour differs from that of men" [17]. Thinking has largely moved on since this statement was made; however, this section looks at whether aspects such as interest in STEMM, capabilities and behaviours are different in women to that of men and whether this impacts on their careers.

3.1. Teaching vs. research – balancing roles and esteem indicators

One theory as to the reduced career progression for women is that once they obtain higher positions (such as lectureships and beyond) they might spend more time teaching than doing research, resulting in fewer papers and grant successes; the latter two are often very important for career progression [18]. There have been differences observed between men and women in the amount and type of research activities undertaken. This is supported by various reports and studies. In the British academic system, women were more likely to hold 'teaching only' roles as opposed to 'research and teaching' roles in comparison with men (30.3% female teaching vs. 22.0% male teaching, 45.3% female research and teaching vs. 56.2% male research and teaching [2]. In 2017, a study throughout the UK showed that female academics still reported spending more hours on teaching and public-engagement tasks and less time on research than did their male colleagues; this was significantly different even after employment contract type, seniority and age were accounted for [19].

A woman's scientific research output (in terms of papers and patents produced) has been shown to vary depending on the country in which they work. Women scientists and engineers in India, for example, produce more 'outputs' than their male colleagues, whereas in Venezuela, male scientists have been found to produce more 'outputs' than female scientists [11]. Numerous

studies have found that in general women are less likely to be awarded research grants, ranging from examples in the Netherlands [20], European Research Council [21], North America [22, 23]. The European Commission has shown that women in STEM academia are more likely to face inequality due to bias in most peer review situations ranging from grant and paper success through to curriculum vitae sifts and job interviews [24, 25]. In addition to this, it has been shown that frequently women are expected to obtain higher numbers of publications and grants in order to then achieve positions [26]; an even more difficult achievement, bearing in mind that the funding and publications are less likely to be given to women. Despite this back drop, some studies are starting to show that women in some areas are not facing bias at interview [27], so the environment could be changing.

Research has shown that journals ranging across the STEMM subjects based in the North America offer fewer opportunities for women to become reviewers and that women represent lower percentages of senior or first authorship. 26% of submitted papers have women as first authors, yet during the same period (2012–2015) only 20% of reviewers were women and male editors requested female reviewers 17% of the time in comparison to 22% requested by female editors [7, 28]. These figures were similar to the numbers observed when authors suggested reviewers. Male authors only suggested female reviewers 15% of the time in comparison to female authors who suggested women 21% of the time. On average men and women who were invited to review did not show differences in their responses (decline or accept). As men and women had similar review acceptance rates, women reviewed fewer papers in comparison with the number actually submitted by females. Women reported that they were less likely to be on influential panels, such as editorial boards of journals (32% female vs. 42% male), grant giving panels (21% female vs. 38% male) or become an editor (8% female vs. 20% male) [7, 22, 28, 29]. A number of similar studies for different journals and in different countries have shown similar trends. Journals are not the only place where male to female ratios have been suggested as problematic. From grant reviews through to promotions and job application situations, it has been suggested that with more men in senior positions, there might frequently be more men undertaking the peer review.

3.2. Lifestyle commitments and life balance

In the 1960s, women were not usually encouraged to pursue their professional career during the early years of child-rearing, mainly due to the concern of the effect of the decrease of their intellectual creativity [30]. 40 years later, one common explanation of continued gender inequality was the fact that women, more than men, hold the burdens of childcare and marriage and this is believed to be the best account for gender inequality [31]. In the 1990s, it was suggested that men tended to have lifestyle advantages over women and were often known to have greater resources, such as money and influential friends [32]. It has also been suggested that the belief that this is so, whether it's true or not, affects women's decisions, their careers and how they are treated [31]. One view that was used to explain gender inequality was that 'women tend to have less time, energy and commitment to invest in their careers and as a result are less scientifically valuable than men' and this is a popular explanation that relates to women's slow career advancements [33].

In the next decade, a study showed that the women in the study believed that having children could be detrimental to their career prospects and felt it was important to plan their pregnancies around their work timetables [34]. Women within the study group had adapted their personal lives to fit into their professional lives. From the 11 women in the study, one had chosen to have no children, six had babies in the month of May to avoid key teaching periods, two women waited until they became professors and two had children as students and postponed their careers. This study provides evidence that child-bearing does affect careers and mindsets of women greatly and that women are trying to avoid career disruption [34].

Conference attendance is also an important esteem indicator in academia and plays an important role in networking and research dissemination. It has been reported that part-time working, career breaks, balancing home and work life and a decreased attendance at international conferences could all have a detrimental effect on career progression [35]. This view is partially supported by evidence from the UK nationwide survey reporting that 54.2% of part-time academic staff were female [2], and it has to be recalled that women, on average, only make up to 29% of the academic population [1]. It has also been suggested that family responsibilities make female scientists in academia less geographically mobile than men and this factor might intensify gender inequalities in occupation and salary [36]. Interestingly, some studies did not indicate a detrimental effect in relation to having a family. In Israel for example it was found that child-raising did not have a negative impact on career progression for female professors in the natural sciences, and the rationale put forward was that these women produced more research papers than their male equivalents [11]. However, child-raising had a small effect on their abilities to travel abroad for international meetings and research opportunities, which is perceived as vital for scientists in small countries [11].

3.3. Confidence, behaviour and role models

Encouragement in career choices and progression is a key factor in inequality. Due to traditional societal beliefs regarding suitable roles for men and women, in the 1980s males generally received more encouragements for career pursuits and achievements than females [17]. In a survey of medical academics throughout the UK, women that responded were less likely to be encouraged towards promotion (38% female vs. 43% male) [7]. Women are also less likely to believe that gender equality exists when trying to gain a more senior position, with 47.3% of males believing there was equality and just 23% of females agreeing [3, 19].

By 2017, encouragement by management to achieve promotion was still lower in women than in men. In a UK study (43 universities, STEM based academics), 48.8% of women had been encouraged to apply for promotion whereas 59.7% of the men had been encouraged [19]. Outstanding women scientists might not engage in scientific careers simply because they do not have enough encouragement to do so, therefore they question whether they have what it takes to be successful or simply because they lack a female role model that could help them visualise themselves as faculty members [37]. Role models are themselves an important factor. In 1976 it was reported that more women than men were reporting a lack of a role model or mentoring, suggesting that an appropriate role model or mentor was either not available, or not offered to those women [38]. The lack of a mentor was studied in the 1970s (and most

likely before then) and in investigating women in male dominated subjects, women mentored by men were thought to adapt their intellectual and personal integrations more than women who were mentored by other women [38]. Although this adaptation might assist women to 'fit into the system' better, it may not be the natural style of the woman involved, and long term this could have a detrimental effect on her attitude or wellbeing. A later study on mentors and role models for women showed that 50 of 558 women commented on the lack of female mentors [39]. Women with children within the study noticed that female mentors were often ones without family responsibilities or children, and therefore were not suitable role models when it came to combining family and careers [39]. In the present day, women are still more likely to not identify with an appropriate role model. In a survey of medical academics throughout the UK, women were more likely to report a lack of a role model (16% female vs. 4% male) or appropriate mentoring (29% female vs. 19% male) [7]. In 2017, female STEM academics reported that they had less access to appropriate role models than men but men did not indicate an advantage for themselves [19]. Therefore despite the number of studies throughout the decades highlighting that lack of role models was an issue, it appears that females may still not always have access to appropriate role models today.

Stereotypical characteristics of each gender might also play a part in gender inequality. The stereotypical masculine qualities are generally instrumental qualities, for example, competitiveness, dominance and assertiveness [17]. These qualities are usually related to success; however, the stereotypical feminine role is generally qualities that are related to emotion, for example, sensitivity, nurturing and innocence [17]. Stereotypes are problematic in the way that people are viewed, but there might also be real differences in the way that men and women behave. Confidence issues have also been suggested as potential barriers for women in academia. One view is that women might lack confidence when pushing for promotion whilst being seen as aggressive if they do push for promotion [40]. Bandura suggested that women who chose science and engineering tend to have strong beliefs in themselves and must possess the confidence in their ability to go against the social norms [41]. They must be confident that they can thrive when mentors and other supportive associates are lacking [42].

4. Understanding the potential roles of CPPD and the workplace in developing equality

The differences between the roles, opportunities and perceptions of success were explored in the first half of this chapter. These are essential as studies have shown that they are key factors in academic STEMM subjects in career progression and equality.

There are several reasons that contribute to the gender inequality in academia and it has been suggested that these reasons go as far back as elementary school where boys naturally had more interest in studying science than girls. The study on 6th grade students from the United States 42% of girls enjoyed science compared with 63% of boys [43]. It was suggested that this could be one explanation as to why there are fewer females entering the scientific departments, and therefore fewer females possess higher positions within the department [43]. However, by

contrast, the numbers show that women are entering STEM subjects in increasing numbers. Whilst there were large disparities in bachelor's degree and PhD level attainments between the sexes up until the 1960s, for many disciplines these disparities were reduced and in many disciplines the numbers of females achieving bachelor's degrees and PhDs had outnumbered the males by the 1980s and 1990s [44]. Therefore with the exception of a few subject areas (computer science, engineering and physical science), the numbers of women entering STEMM subjects are either equal or higher than males. This indicates that retention of females within STEMM subjects is the leading factor in the reduced number of women in academia, and not that females are not entering into STEMM subjects at school, degree, PhD or post-doctoral level.

The types of roles, such as teaching versus research, and their outcomes and time allocated to these activities are important. As are life balance and the opportunities afforded to each academic. The 5000 person strong academic survey indicated that the following three factors were ranked the highest in relation to influencing academic careers: (i) being involved in well-regarded projects, (ii) successfully applying for grants and (iii) having substantive research output [3]. By contrast, the highest markers for a less successful career were stated as (i) having a heavy administrative load, (ii) having a heavy teaching load and (iii) taking a career break. This knowledge is essential as ultimately, during the promotions and employment processes, it is academics making the decisions based on their perceptions and requirements for the role. Understanding of both the statistics and current situations for female academics, understanding of male and female perspectives and reflections regarding promotion and working conditions have helped to signpost the types of interventions and training opportunities required. These include CPPD to empower and enable women to advance through their careers in a manner appropriate to their working and personal conditions and needs [45]. Health professionals are kept updated to meet the needs of the health service, the patients and their own professional development by continuing professional development. It involves continuous attainment of new skills, knowledge and approaches to assist in quality performance [46].

4.1. Exploring possible CPPD interventions and their success rates

In the UK, the Equality Challenge Unit published reports from 2004 to 2010 [2, 47] and the Higher Education Funding Council for England (HEFCE) also started an Equality Scheme in 2007 which is updated biannually [48], both with the aims of researching, highlighting and supporting good practice in higher education via women's networks, mentoring and career development. It would be unfair, however, to suggest that CPPD directives for women were not in place by 2004. A management development programme for women run by Strathclyde and Edinburgh Universities, which commenced in 1989, and reviewed female CPD initiatives run in the 1980s and 1990s describing that despite the work carried out, high satisfaction levels from participants and a high uptake of the courses, little perceptible change in the number of women at senior levels was observed [49]. One discussion point within the paper was that many women feel that single sex training is unfair to men and patronising to women, they also suggest that women might have less energy to pursue problems such as unequal pay due

to a depressed economy and therefore failing women's networks [49]. In addition, it has been suggested that 'evaluation must look at the desired result rather than simply participant satisfaction or opinion of professional development experiences' [50], and this is certainly the case for CPD relating to women in academia, but is also more difficult to assess than participant satisfaction. The third suggestion is that women might prefer to side-step the issue of a male dominated career and opt for freelance or consultancy instead [49]. The 'Athena Project' was set up in the UK and similar other programmes are in place worldwide to try and promote good practice within the medical and scientific field, as so many of the inequalities discussed above had been observed throughout scientific subjects within universities [7]. These projects use many methods to try and establish whether inequalities exist (often not just between the genders but also in a number of other factors) and to encourage equal opportunities and to recognise good practice.

A major aspect to be taken into account when planning the intervention is the time allocated to CPPD. One study showed that academics (lecturer through to professor) spent an average of 50.4 hours working per week split down into teaching 17.8 hours, research 15.9 hours, administration 10.2 hours, external work 1.7 hours, other work 3 hours and only 1.8 hours on professional development [45]. This average time allocation must either be taken into consideration when planning CPD courses, or institutes have to provide and expect a larger time allocation, otherwise only participants willing to give their 'free' time can participate in longer courses. In addition, academics might be required to undertake several different types of CPD within this time allocation, for example with the Royal College, many health care professions and for veterinary professionals, formal CPPD in teaching, research and/or management is required [51]. Professional CPD schemes often require a particular number of credits or hours in order to complete the annual requirement, this in turn might impact on the part/time worker (as explored above, this effect is more likely to be a female [2]) as more time is devoted to CPD and less to writing papers or gaining grants which, as was previously reviewed, are perceived to be more important for career progression [18, 52].

The type of CPD is an important factor to consider. Riding and Agrell [53], suggested that learning preferences, such as the cognitive style, are mediated by gender. The link between gender and learning preferences has attracted attention and can be analysed by looking at approaches to studying. Some experiments concluded that there were no statistically significant differences between men and women and the types of learning orientations [54]. Conversely, others suggested from their studies that when it comes to information processing, men process more rapidly than women depending on the learning systems used [55]. Hence it is important when organising CPD, to use learning processes that appeal to both men and women [56]. It has also been suggested that the methods available are; (i) work based activities such as being a member of a team and resolving tasks, (ii) seminars, courses and conferences and (iii) self-directed learning [56].

However, it has been suggested that a lack of CPD is not the reason for women not progressing through the system. It has been reported that more women took up CPD opportunities than men, despite lower numbers of women in academia [57]. There is also the compounding difficulty that a large variety of CPD activities are available in many different subject areas

and might range from half day courses through to qualifications such as the Postgraduate Certificate in Higher Education (PGCHE), masters' degree and even undertaking a further PhD in the area of education for example, whilst undertaking full time academic duties (in the STEMM areas) are now viable CPD options. This vast range makes assessing their impact (especially where people undertake a variety of these options), very difficult, especially on a long-term basis. This makes the statistics on the male:female ratios and income more important as long-term differences might indicate whether equality schemes, which usually emphasise CPD, have an effect or not. The types of CPPD offered to men and women might also have an impact on the roles that they take within the work place and on promotion. A recent study of 5000 academics from 43 British institutions showed that women reported that were more likely to be offered training in teaching than men, but less likely to be offered training in leadership, grant application skills, management, postgraduate supervision, project or finance management, equality and diversity and unconscious bias [3]. Women were also more likely to report more obstacles in undertaking CPPD than men. These included barriers such as time, obstructive management, cost, lack of eligibility, caring responsibilities and training not being relevant to position or offered within their institution [3].

An interesting, and somewhat aligned study on school teachers working towards or completing a Masters' degree in education showed that personal commitment, workplace culture and organisation of the course all had an impact on whether this predominantly female (83%) group completed their degree or not [58]. This directly feeds back into the fact that women were less likely to feel supported or mentored in the workplace than men [7]. An important feature that could potentially decrease gender inequality is that women scientists should acquire mentoring and in turn, be effective mentors. This could be achieved by CPD courses that focus on mentoring opportunities [4]. Research in Australia has shown that mentoring programmes can have beneficial effects for women including retention of staff, higher rates of promotion, grant and paper success [59, 60]. These results were mirrored in American institutions where females received mentoring but whole department educational sessions on gender bias were introduced. Improvements in pay equity, promotion and staff satisfaction were reported [39, 61, 62]. Flexibility was also more important to female academics than male academics [7], and it would appear that flexibility (on teaching, course duration and assignment deadlines) was highlighted as something that helped participants to complete the educational masters' course too [58].

The work and home life balance was highlighted as possibly affecting female academics more than males [35], and this was also supported by another study evaluating predominantly female attended CPD courses [63]. The latter study carried out a questionnaire survey on 45 students to measure the impact of CPD on their private lives as well as their professional lives. The results showed that the females' response was much more positive (69% yes definitely, 29% some and 0% no, not really) than males (50% said yes, definitely, 40% some and 10% no, not really) regarding the impact of their training on their practise [63]. This showed that CPD had a much larger effect on females in their professional lives than males. Conversely, only half of their participants responded that carrying out CPD had 'little or no effect on their family life, relationships with partners or relationships with others' and 47% felt that their stress levels had been negatively affected due to time commitment,

time away from home and workload. Despite these more negative effects, 84% reported an increase in confidence [63]. A similar study looking at the PGCHE undertaken by university lecturers (and is increasingly a compulsory element for all new lecturers [64] as suggested by the Dearing Report [65] suggested that participants confidence levels were boosted [66] and that meeting people from throughout the university was also useful. Even this outcome might, in part, help towards the decreased confidence levels and potential reduction in networking abilities (from less attendance at international conferences) observed in previous studies [7, 35, 40].

5. Conclusions and future directions

This review chapter has drawn together research from many areas, both quantitative and qualitative to show that gender inequality is still an issue within scientific academia around the world. Large differences in pay, promotion, expectations, and requirements exist despite numerous laws and programmes being implemented, however it does appear small advances are being observed throughout academia, but at a slower rate in science, engineering and technology disciplines [5]. This chapter has also explored some possible reasons for, and solutions to, the gender inequality in STEMM – including CPD as a possible 'equality gap closing mechanism'. As with many CPD issues, understanding the links between effective and useful CPD and its effects on career progression are very difficult to determine.

Further research is needed in order to explore the effects of CPD methods and the relationship between learning styles and gender [56]. Ideally long-term studies need to be carried out to observe whether CPD, and indeed which type of CPD, is useful in assisting with career progression. This type of research teamed up with large-scale quantitative and qualitative research understanding (such as the HEFCE research discussed) will help to understand the needs of both academics and the institutions. The type of CPD offered is also important as individuals prefer modes of learning which suit the way they process information (due to different needs and wishes of the individuals involved). Some women have expressed that they do not like 'women only' programmes, whereas these programmes are attended by other women in universities throughout the UK.

Alongside CPD, a number of other factors might be influencing career progression including equality law, economics (CPD usually has a cost attributed to it), institutional aims and objectives, and indeed the wishes of the academics themselves. A key point to remember is that CPD can assist in redressing the gender imbalance, if appropriately designed courses are available to academics. Evidence has shown that CPD can increase confidence (a lack of which has been suggested as a reason for lack of progression among female academics [40]) and it is likely that CPD also affects many other important areas too. Within this context, it should also be important to reflect that CPD is not only essential for the academics involved, but also where research is a consideration there might be large areas of society affected in addition to the students that they teach, researchers within their group, their colleagues, school and ultimately their higher education institute.

Even though such listings of barriers exist that affect women's options and achievements, more research on systems by which social expectations and beliefs contribute to women's professional behaviour is required. It would not only increase the understanding of women's career development, but would also help in the design of systematic programs of intervention which are capable of increasing women's statuses within their professional careers [17]. Although this was stated in 1981, it is still largely true now.

In conclusion, gender inequality does not only originate in beliefs, self-confidence and values, but also in obstructions derived from the social cultures that educate scientists themselves. To reduce gender inequality in science, it is not only important to change women's attitudes and aspirations, but there is also a need for actions that would change the structural systems that are still in favour of the male scientists [67]. It is necessary to determine what it is about structural systems that make them well-suited to men's lives. So far, many university strategies have failed to assist in the combined roles of family life and work. Male-dominated leadership in academic institutions often fail to consider women-friendly policies and practises and women are expected to adjust to the norms which do not accommodate their differences [34]. On average only 28% of research performing organisations within the EU in 2015 had gender equality plans for example [6]. The more modern view is that in fact institutions should become more work-life balance and more understanding of the needs of their academics whether male or female. Changes in many societies mean that roles outside of the workplace are also changing. The differing roles expected from males and females undertaking the same job descriptions are also very complex and might put women at a disadvantage in relation to promotion and career advancement. Work towards recognising the differing roles and rewarding them appropriately, or giving the same opportunities for men and women need to be fostered by not only the universities but also grant funding agencies, journals and similar organisations that ultimately impact upon careers and esteem factors.

Looking across the decades, views have changed radically. An interesting progression is the awareness that there has been a gender gap in the STEMM subjects and that this needs to be rectified via a number of different routes. Both small and large scale studies are being carried out in differing countries to see where the differences lie. Transparency is being encouraged and in many cases equality is being rewarded or simply an expected part of processes such as academic roles, peer review, pay and when hiring staff.

CPPD plays an important role in addressing some of the challenges observed. Whether it is educational courses directed at both men and women such as equality training and management courses, or CPPD directed at women, getting the right balance of CPPD is essential. Undertaking too much or inappropriate CPPD in lieu of achieving grants and publications might inadvertently slow career advancement. By contrast, not being able to access appropriate CPPD might also deter progression. The ASSET report highlighted the need to make appropriate mentors, supportive and career progressive networks, and CPPD available for all staff [3]. Recent research suggested that female only programmes may in fact support stereotypes and care must be taken when developing programmes in STEM [68]. Pedagogical techniques, availability of training and education for academics and those in related roles are all essential in helping to close gender gaps across the board and in changing perceptions of STEMM academic roles.

Conflict of interest

The authors declare no conflicts of interest.

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The Role of Pedagogy in Clinical Education

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Additional information is available at the end of the chapter

Abstract

This chapter introduces the role of pedagogy in the tuition of clinical subjects. After which an overview of the two types of pedagogy that underpin it are explained. Research on the role and function of pedagogy in clinical subjects is in its infancy; as such, different examples of approaches are presented. Specifically, I look at public health, Widening Participation and Public and Patient Involvement (PPI). The chapter will highlight that there is a need for more academic work that investigates the role pedagogy plays in clinical subjects. In short, despite that fact that there is a pressing need in most Western countries to train clinical staff, there is an unfortunate lack of pragmatic texts in all areas of clinical education. By highlighting what publications exist, I hope to instigate discussions about the type of publication and style of approaches that are required for the study of medical pedagogies. Because of the variety of stakeholders involved in medical education, not all will uniformly accept new approaches to pedagogy, causing possible tensions. This chapter covers pedagogies relevant to allied healthcare education. Its content may be of interest to tutors who want to know more about clinical pedagogy and curriculum design.

Keywords: medical education, clinical education, healthcare education, medical pedagogies, Public and Patient Involvement (PPI), public health, Widening Participation (WP)

1. Introduction

This chapter will look at substantive approaches from undergraduate and postgraduate medicine and allied health education from UK curriculums. Here we discuss the role pedagogy plays in these clinical areas. Medical education exists across a continuum, including the core curriculum of undergraduate, post-graduate education, and continuing professional development (CPD) once a doctor qualifies. However, medical students also have to take many

elective units during their education, the inclusion of material drawn from elective courses, and Student Select Units (SSUs) in medical schools is often missed in medical education text, as such, I will provide examples of pedagogies from these areas as well, in an attempt to showcase the different roles pedagogy plays.

One can find texts that connect pedagogy to different clinical areas, for example, nursing [1, 2], which has had a focus on narrative pedagogical strategies [3, 4], but also has been approached from feminist, postmodern, and phenomenological perspective, see Ironside [5]. Equally one can find texts in dentistry that address matters of pedagogy [6], including works in sub-specialities like paediatric dentistry [7, 8]. Other clinical areas that have papers connecting them to pedagogy include social work [9], podiatry [10], and paramedic care [11] amongst others. Across the spectrum of medical subjects, one can find publications connected to pedagogy, which are taught as elective modules like the medical humanities [12] or more quintessentially 'medical' areas such as anatomy [13]. As well as specific techniques used within medical education such as simulated learning [14].

However, one format in which only a few key publications exist, which connects pedagogy with clinical education is the production of textbooks or monographs. This is significant because books provide in-depth and multiple author platforms to debate issues of pedagogy in a way that the length of an academic paper does not permit. Secondly, while research should be encouraged, it is not always obvious how to translate it directly into the actual practices of medical education. Therefore, while there are many research papers that one can read, there is a lack of practically-minded, in-depth monographs that connect clinical areas to pedagogy. Of the texts that exist I would specifically point to the recent work on nursing by Dyson [15]. However, there are also more specialised text like Sataloff [16] who connects pedagogy to the medicine of professional voice care.

Despite the fact that research about pedagogy in clinical areas is not as prevalent an area of academic activity as perhaps it might be (even though works do exist), there are still some reasons to be optimistic about its future. For example, currently the timing and situation is fortuitous, as the regulator of doctors, and nurses, the General Medical Council (GMC) and Nursing and Midwifery Council (NMC) respectively (circa 2017), mandate that doctors and nurses actively participate in CPD activities in order to retain their licences to practice medicine/nursing [17, 18]. Meaning that, presently, there is an imperative for clinical professionals to engage in learning that did not previously exist and this opens up a new opportunity for the subject of clinical pedagogy to gain some relevance.

Also, from 2016 the British government has announced a 25% increase in the number undergraduate medical school places [19]. As such, there is currently a need for clinical tutors and academics to revise and reconsider their curriculums and approaches to pedagogy to accommodate 25% more students. More widely, I was felt that this chapter will be of interest to anyone involved in the development of healthcare professions. Primarily because most education and regulatory developments in other allied healthcare professions are predicated on issues that first occur in medicine.

For the sake of brevity, in this chapter, we will specifically look at some emerging themes and subjects in medical education, including Public and Patient Involvement (PPI), public health

and Widening Participation (WP) as clinical areas that have seen some developments in terms of the pedagogical strategies they employ. Other areas like the growth of simulated learning are also important in medicine, but due to the restrictions in word limits here, I will not go into this issue, see Ziv et al. [20] for more details.

Lastly, this chapter has some international salience. Although the exact approaches for teaching medicine in European and Anglophone countries are different, issues related to how to educate medical students and their interaction with other clinical professions remains broadly the same. Hence, the themes identified here will speak to issues present in North America, Australasia as well as in Europe and the UK.

2. Rationale for the chapter

While there are several monograph series that draw upon both theoretical and practical issues in medical education [21, 22], the literature on pedagogy is almost exclusively confined to papers in academic journals; there are few book series dedicated to pedagogy in medicine or other clinical areas. Consequently, the author felt that there is a clear need for a book chapter to examine current issues and evidence related to pedagogy in medicine from a more practical standpoint. In this chapter, then, I aim to present the works of those who have attempted to construct evidence-based pedagogies in clinical areas. Also, to present some of the literature as it exists for readers and to signpost them to particular areas of interest. I collected this body of literature by drawing from purposive sampling techniques. According to Sparkes and Smith ([23]: p. 70) "sampling in qualitative research is best described as purposive or purposeful in which an attempt is made to gain as much knowledge as possible". Purposeful sampling involves the selection of data "from which one can learn a great deal about issues of central importance to the purpose of the inquiry" ([24]: p. 230).

The need to develop pedagogy within medical education to facilitate changes in the way medicine is taught has been clearly identified. For example, the Lancet Commission in their report on medical education opined that medical school curricula were currently not fit to meet societal demands, and were "outdated and static" [25]. Developments in the pedagogy of clinical subjects can help to create the medical schools (and so curricula) fit for the twenty-first century [26], through the dissemination of evidence-based pedagogies for instruction, for which there is clearly a demand both in terms of societal pressure and but also regulatory requirement. One of the key features of pedagogy's function within clinical subjects is that they can be co-produced with patient partners or with input from the public perspective, or from other clinical professionals [27–29]. However, medical educators perpetually have to be cognizant that their work and its content adheres to the stipulations of the General Medical Council, Medical Schools Council, the Anatomical Society and the College of Paramedics etc. who have a role in determining what the clinical students are taught. It is important in medicine and allied healthcare professions that pedagogies be developed in a highly inclusive manner and that are representative of a variety of stakeholders in medical and health professions education [30]. I hope to shine some light on these points in this chapter.

3. Types of pedagogy in clinical education

There are essentially two different investigative positions one can employ to analyse pedagogy in relation to curriculum design and teaching methodologies within the environments of medical schools. That is to say, we can look at the variance of pedagogical strategies between subjects, or within subjects themselves. In a very basic manner, one can simplify these areas down to the following binary set:

1. Pedagogies of individual subjects taught as part of a curriculum or elective

    a. Example: Pedagogies for Teaching Anatomy

2. Pedagogies of topics or themes taught across clinical or medical curriculums

    a. Example: Pedagogies for teaching gendered issues in medicine

Included within these two categories are both the traditional subjects that students will have to learn which will typically draw upon standard pedagogical formats, lectures, group work etc. However, this dyad also reflects subjects that medical schools are currently adapting to incorporate. I.e. the themes are driven by innovations in medical schools to produce the doctors of the future [26]. For example, the increasing role of patient centred medicine, the increasing use of technology in the teaching of MOOCs, or other online/distant teaching platforms, in addition to mobile applications and E-health, i.e. health technology methodologies. This is why the division between subject and theme when providing an overview of a discipline is useful, as it shows not just what exists but also the struggle institutions face in adapting to new disruptive technologies [31] and so societal pressures.

3.1. Individual subjects

A variety of medical education texts exist that cover both generic subject areas, such as Understanding Medical Education—Evidence, Theory and Practice [21] or the Routledge International Handbook of Medical Education by Bin Abdulrahman, Mennin [32]. However, fewer books exist on subject-specific areas of medicine, for example, *Medical Physiology: Principles for Clinical Medicine* by Rhoades and Bell [33]. While a useful repository of medical knowledge for trainee or practising doctors about physiology, it does not offer new methods for teaching the subject or development of new material from within the subject itself. Consequently, as already iterated, while there are many papers on individual subjects there does seem to be space to explore new and innovative areas of medical pedagogy in book-format.

3.2. Thematic texts

In addition to pedagogical strategies that focus on individual areas of the curriculum, one could focus on themes that might emerge in several areas across a curriculum. For example, introducing social justice concerns, ethics or gender-related issues in medicine. Given the political and social environment within which medicine and medical education function, it is to be expected that there is a significant scope for the development of pedagogical strategies across thematic areas.

Moreover, there is scope for research about clinical pedagogy to provide a focus on new teaching pedagogies that are present across different areas of medicine, and or other clinical subjects combined, such as simulation [34]. There is also scope for subjects that simply address the use of pedagogical techniques that are less used in medicine, such as the flipped classroom models of teaching [35]. In addition, other cross-curriculum themes that cannot be ignored include: the connection of pedagogy to assessment format within medical schools, the role of reflection, feeding back and feeding forward [36]. In the next section, we will look at some specific examples of how pedagogies have been developed in clinical subjects both in terms of individual subjects but also in thematic areas.

4. Emerging pedagogical perspectives

4.1. Pedagogies in population health

As a discipline public health is concerned with influencing and understanding health and wellbeing at the level of populations [37]. Given the wide reaching nature of public health practice, it involves more clinical staff than simply doctors, with undergraduate and postgraduate programs producing a multidisciplinary workforce including nurses, dentists, carers, aid workers, biostatisticians and epidemiologists amongst others.

Literature exists that gives an overview of population health such as Young [38], however like many, Young investigates the subject from a quantitative, epidemiological perspective. There is a distinct lack of literature that connects the qualitative aspect of education (including pedagogy) to public health, primarily qualitative works on public health are based in a social science approach [39], that contextualise populations health issue in relation to a societal issue, for example, *Public Health and Social Justice* by Donohoe [40].

In recent years, the subject discipline has risen to prominence, but there has not been a concurrent increase in the teaching of the subject within medical schools. Therefore, it remains under-researched in terms of developing an evidence-based pedagogic strategy for teaching the subject. In addition, the teachers of the subject can be under-resourced in terms of the literature from which they can draw to successfully engage students.

One of the most practical ways to expose medical students to public and population health is to engage them with community health initiatives, especially disadvantaged or marginalised communities. I recognise, however, that public engagement happens across a spectrum, as Ellaway et al. [41] has highlighted:

1. "Community-based medical education that takes place in traditional academic settings.

2. Public health engagement that involves teaching in community settings, but does not involve the community in its design or any other activity.

3. Community-based public health education that directly involves directly members of a community in the design, conduct, and evaluation of engagement, and meets the needs of the community as well as the students"

Although population health is a more recent addition to medical school curriculums and there is only a sparse literature of pedagogical methods used in the subject area. One can see that each of these three levels represents a different pedagogical strategy across the continuum of medical education. Moreover, they have the potential to become bespoke pedagogies in their own right, depending on the level of engagement a course uses. One of the main vehicles for the development of pedagogical innovations in this area is the Public Health Educators in Medical Schools (PHEMS) network, see Vyas, Rodrigues [42].

The PHEMS network, in partnership with the Faculty of Public Health, has identified the core public health content knowledge to be achieved by any UK medical graduate, irrespective of curriculum design [43, 44]. This learning, of course, must be mapped to the General Medical Council's 2015 document *Outcomes for Graduates* [45] and be in accordance with the Faculty of Public Health's conceptions of the subject discipline. Within this framework, I feel that that the works of the PHEMS network can highlight public health topics and pedagogical suggestions for tutors to further the integration of population health teaching within medical education.

PHEMS have devised four innovative pedagogical approaches for engaging medical students in public health. These are (1) social accountability and community engagement, (2) making the course clinically relevant, (3) sticking to a core content, and recognising that assessment drives learning, and (4) use technology-enhanced learning [42]. Highlighting these four pedagogic approaches will help healthcare systems support the inclusion of population and public health in their curriculums. I would suggest that this is a good example of how collaborative working in an emerging subject within medical schools can start to form a consensus about the best pedagogical strategies for teaching a discipline.

Looking at innovative approaches for engaging medical students on the subjects of population and public health. One can see that through dialogue with like-minded professional and mediation/support of a professional body, subject areas can start to come to a consensus on the best approaches to pedagogy within their discipline.

4.2. Pedagogies for Widening Participation in medicine

Widening Participation (WP) is the process through which students from under-represented groups, be it in relation to gender, age, ethnicity, sexuality or another protected characteristic are facilitated to study medicine [46, 47]. Medical unions such as the British Medical Association support this position:

"Doctors should be as representative as possible of the society they serve in order to provide the best possible care to the UK population" [48].

However, also the Medical Schools Council [49], and the General Medical Council [50], and NHS Health Education England has a Widening Participation programme and a Talent for Care strategy, which it uses to promote the WP agenda. More specifically, NHS Health Education England has four specific pre-employment programmes:

- Project SEARCH

- Princes Trust

- Inspiring Futures

- Brightside Charity

While also running work experience programmes with schools, an integrated apprentice-ship scheme—different aspects of healthcare, careers days/fayres, healthcare experience programmes, preparation for work and employability courses. As such, it is fair to say the WP agenda is extensive in medicine, and many different strategies are used to engage people with it.

Consequently, there is currently a drive within the profession and government to help widen participation in medicine and enhance social mobility. We are also entering a recruitment crisis in healthcare [51, 52]. The government is currently funding an increase in medical school places and is prioritising applications that specifically address Widening Participation. For these reasons, it can be argued that the sharing of pedagogical practice and expertise is a much-needed area in relation to WP in medicine.

Medicine and dentistry specifically as a way to widen participation use 1-year pre-medical gateway courses, that students might take to enter medicine if they have not met the specific requirements for directly entering a degree programme [53]. Some universities such as the University of Birmingham accept up to 10% of each year's cohort from Widening Participation schemes [54]. Particular pedagogical approaches are used for students on gateway schemes, but also when they are mixed in with other students in their undergraduate years.

Widening Participation is not just an activity that happens in universities however, Widening Participation initiatives begin at the selection stages for those applying to medical schools, and in the schools themselves. However, much activity in terms of aspiration building, raising academic attainment, career planning and developments occurs in primary and secondary education in terms of WP long before a student applies to medical school. Schools will design pathways for learning specifically for those students who want to study medicine, as well as for those who enter specialist medical and healthcare studio schools.[1] It is key if we are going to create a more diverse workforce in medicine to encourage students at these younger ages, to consider a career as a doctor as a real option. Research has shown that inclusive pedagogies should be sensitive to the complexities of diversity, and the ways in which teachers' and students' identities might influence academic engagement [55].

From a UK perspective, some of the key networks for the development of pedagogy are the Northern Admissions Network of Medical Schools (NAMNS) and the National Widening Participation Group in Medicine, which is run by medical school leads for Widening Participation in the UK. This group aims to promote best practice in Widening Participation in UK medical schools, and to act as a problem-solving forum for WP leads.

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[1]These are specialist schools and colleges that prep students to gain entry to medical school.

Despite the presence of the WP agenda in all medical schools and schemes to promote it, there is not a rigorous evidence-based approach to implementing these initiatives. Frequently approaches are simply seen as a form of community engagement; thought is not often given to the pedagogy or the best way in which we might help different groups access medical education, or how the selection process to universities might disenfranchise certain groups. As was the case for pedagogic textbooks in public health, currently, there are no monographs concerning Widening Participation in medicine, let alone from a pedagogical perspective. As far as the author is aware. If one wants to learn about WP in medicine, you may find single chapters in more broadly themed books about WP in Higher Education, such as ' The right to Higher Education: Beyond Widening Participation' by Penny Jane Burke, and Fuller, Heath [56], and then attempt to apply its lessons to medicine or a healthcare related subject. Further work needs to be done, I feel, in this highly important area.

4.3. Pedagogies of patient and public involvement

A thematic area that cuts across all clinical disciplines is the role that patients plays in the education of students. Naturally, the focus of the different caring professions is the same, to help patients, and consequently patient-interaction features regularly within the education of nurses, doctors, dentists, etc. What has been less prevalent is a debate about the best and most appropriate ways to work with and for patients from a pedagogical perspective, in what is known as Patient and Public Involvement (PPI) [57].

Rees et al. [58] describes Patient and Public Involvement in medical education as the *condiciones sine quibus non* of a quality education in medicine and the clinical professions more widely. The idea of a partnership between the patient, public and clinician has been echoed by many in medical education from clinical and non-clinical researchers [59], patients themselves and the General Medical Council as a medical regulator [45]. The PPI agenda is also present in a variety of other clinical areas outside of medicine such as health service research, but also health and social care, see Hayes et al. [60]. It is also worth noting the patient involvement in medical education happens both in the core modules for students but also in their elective courses.

But yet, as Towle et al. [61] highlights in their review of PPI literature, there remains a lack of theory, application and evaluation of PPI schemes. It has also been noted from a pedagogic perspective, by critics of PPI in its current state that students often learn about patient-centred medicine from other doctors rather than from patients themselves [58, 62]. Once more, there is a clear need for a publication that connects pedagogy and PPI. I also feel PPI is often treated as a monolithic subject area, even though it involves a variety of ontologically distinct roles. For example, patients, the public at large, patient representatives and lay representative occupy different roles within PPI, as well as being heterogeneous in their own right. In short, there is no typical patient. The specificity of these roles needs to be accounted for, and tailored to individual situations when developing pedagogy if it is to be fit for purpose. This issue in itself I feel is further justification for the need for additional work on the subject:

"Rather than attempting to simplify these matters, however, we would argue that ambiguity and complexity in PPI is precisely why medical education should demand more consideration of ontological and epistemological matters in PPI scholarship and research." ([63]: p. 85).

Efforts to increase the patient voice in medical education are also occurring in other Western nations; PPI is an agenda that is profligate throughout the Anglosphere and in Western Europe. This is particularly the case in Canada—see the case studies in Spencer et al. [64]. Consequently, medical education, policy and legislation about PPI are generalizable across many Anglophone countries. It is built chiefly around an evidence base and legislation in the UK, Canada and Australia. Patient and public involvement is paramount for doctors from the beginning of their training but also throughout the entire duration of their clinical practice. Previously, publications have highlighted this:

"the field of medical education could have much to gain from crossing the boundaries between those seemingly different spheres and developing a cogent, context-specific approach to embedding PPI as both formal education and education-through regulation for all medical professionals." ([63]: p. 80).

Currently there are a small number of books that relate to PPI in medicine, but they tend to be confined to very specific areas of medicine or health, such as: health technology assessment [65], a critique of the underlying philosophy of PPI [66], a comparison between European nations policies on PPI [67]. Narrative stories of PPI in palliative care [68], and PPI in the commissioning of Primary Care Trusts [69] etc. As this list details, the books currently in circulation about PPI relate to niche areas, like health technology assessment for example. While publications exist in related topics, such as patient-centered medicine, there are no generic works on PPI in monograph format, and more specifically, no books exist with an explicit focus on PPI from a pedagogical perspective. Which has emerged, as a recurrent theme throughout this chapter, there is space for a pragmatic text on the role and function of pedagogies in PPI.

Frequently books on PPI state that their objectives are to empower patients through publishing accounts of their participation in medical services design or education. As such, many books like Rhodes and Small [68] are a collection of narratives from the patient perspective. I find such collections worthy, but they are categorically distinct from works that connect PPI to pedagogy.

The different pedagogical approaches to PPI can then be broken down into three different areas, in relation to the different needs that they serve: societal need, regulatory need and educational need, for example.

4.3.1. Societal need

There is a societal need for patient's voices to be heard in medicine so that patients can become an active participant in the design of medical education and clinical services. This is also a thoroughly modern way of working, that accounts for patient needs, as Sullivan ([70]: p. 1595) stated:

"The physicians' job description will be changed to focus on patients' lives rather than patients' bodies."

Further to this, there is also a need for hard to reach sections of society, such as LGBTQI+, military veterans and disabled groups to be more fully represented in clinical education systems. Fundamentally, I believe that pedagogies for patient-centered medicine and PPI need to have their genesis in collaboration and partnership if they are to meet societal needs. I.e.

where patients, lay representatives, students, doctors, and researchers work in collaboration, this helps to produce pedagogies that reflect the needs of wider societal groups, and not ones simply formed by doctors or academics in isolation.

4.3.2. Regulatory need

The GMC as a medical regulator is pushing for more patient-centered medicine and patient engagement—see GMC [45], GMC [71], GMC [72]. Although there is only scant PPI literature in relation to its role in UK regulation [73]. It is essential that medical educators comprehend the perspectives and wishes of medical regulator's priorities for patient involvement in medical education.

4.3.3. Educational need

Effective educational strategies for engaging medical students with patients and members of the public in medicine and medical assessment has been an aspiration in medicine for a long time. However, this agenda was diminished in the twentieth century due to the rise in popularity of statistics and biomedical technology in medicine, replacing opportunities for patient contact. Prior to this medical reformer, William Osler in 1905 wrote:

"for the junior student in medicine and surgery, it is a safe rule to have no teaching without a patient for a text, and the best teaching is that taught by the patient himself" ([74]: p. 332).

There is still a need for tutors and other staff to increase patient and public involvement in their student's education. We would also point to the Soar and Ryan ([75]: p. 80) who commented:

"The General Medical Council recently issued advice about patient and public involvement in all areas of medical education, including curricular design, but it is not immediately clear how this should be incorporated."

Steps need to be taken so that we can more clearly explain how PPI can be used in curriculum design and clinical teaching more widely, for which there is clearly an educational need and a regulatory agenda. In 2018, the problem remains, how do we progress from aspiration to delivery of a truly patient-centred form of medical education? More specifically how can we provide a variety of PPI solutions, both bespoke and generic that other PPI stakeholders can replicate or ruminate upon? Medical educators recognise that medical education is a spectrum (undergraduate, post-graduate and continuing professional development); consequently, the development of a pedagogy of PPI in medical education must also reflect this.

5. Discussion

The different approaches to pedagogies given in this chapter hang together as a cohesive whole rather than as separate individual approaches. This is because the unifying theme amongst approaches is that they aim towards increasing the patient-centeredness of medicine, patient benefits, and the role and voice of the public in medical education. I agree with the World Health

Organisation that medical schools need to be more accountable, and have obligations to the health concerns of the communities that they serve [76, 77]. I feel that this aim is reflected in the different areas of pedagogy that I have presented in this chapter. For example, the pedagogies used in Widening Participation activities in medical schools are designed to create a medical workforce that is more receptive to all the needs of patients regardless of age, gender, sexuality and income. Pedagogies used to disseminate health technologies highlight how the dissemination of health technologies to clinical professions and patients through apps, mobile solutions and distance learning not only democratises medical knowledge, but also personalises the pedagogical approaches to education, and leads to its diffusion globally [78]. Pedagogies used to teach population health talk speak to how the subject is being reformed to be taught as a transformative learning experience, which is cognizant of social justice concerns, and social accountability [42]. Lastly, the pedagogies used to further Patient and Public Involvement in medicine directly informs clinical tutors and others how to involve patients in all areas of medical education.

However, co-production is not without tensions, for example, not all stakeholders uniformly accepted new approaches to education within medicine, and that differing voices still need to be heard. This position recognises that the interests of students, staff, clinicians, medical schools and their regulators are not always aligned, but all have a role to play in the delivery of effective medical education and ultimately better care for patients. A readily identifiable example of this tension would be the methods used for Widening Participation activities.

Regulators of medical schools have on-going concerns about the use of outcome measures to determine the effectiveness of pedagogical techniques used to teach undergraduate medicine. Such institutions need to understand what are the most beneficial indicators to determine the effectiveness of teaching a subject, while also highlighting the limitations (variance) of indicators that are available. In short, there are difficulties of evaluating medical education pedagogy in terms that are relevant to patient outcomes for WP activities.

As such, while Widening Participation activities must be delivered, there is not always robust psychometric tests that can be used to substantiate the value of the teaching methods in quantitative and ultimately legally defensible terms. Which is not to suggest such activities lack value, but rather the measurement of value that medical institutions and regulators deem as valid and robust cannot easily be accounted for in terms of diversity or issues of social justice, but they are concomitantly expected to engage with such activities nevertheless. Equally, one might also highlight the work of Greenbank ([79]: p. 141) who suggested that WP in Higher Education frequently appears to be "lacking a cohesive, evidence-based rationale". It seems then that the values behind pedagogical exercises and techniques used may at times be at odds with institutions and the data-driven *modus operandi* of academic and regulatory bodies.

6. Conclusions

Looking at the development of the population and public health based pedagogies by the PHEMS group, one of the conclusions of this chapter is that through dialogue with like-minded professionals and support of a professional body, newer clinical subjects can start to come to a consensus on the best approaches to pedagogy within their area.

We can also conclude that there may be instances where because of the variety of stakeholders involved in medical education: patients, public, clinical staff, medical schools, medical regulators etc. not all the stakeholders will uniformly accept new approaches to education within medicine, due to the perceived lack of statistical evidence-base, and this can lead to tensions. As such, teaching approaches in more politically sensitive parts of clinical subjects like Widening Participation may face opposition in certain quarters.

In addition, one can also see that the external policy decisions about medical student numbers and regulatory pressures to increase the patient-centeredness of medicine act as drivers in terms of how tutors approach teaching their classes. As such, in medicine, there are external factors outside the medical school itself that act as drivers for how and which pedagogies are implemented in clinical teaching.

Lastly, the chapter has also highlighted that while research about pedagogy in clinical areas is not as prevalent an area of academic activity as it might be, even though papers on the subject do exist. What is required going forward is the production of textbooks or monographs which provide in-depth long form and multiple platforms to debate issues of pedagogy in a way that academic paper length does not permit.

Conflict of interest

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Achievement Bests Framework, Cognitive Load Theory, and Equation Solving

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Additional information is available at the end of the chapter

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Abstract

The Framework of Achievement Bests provides an explanatory account into the process of optimization, which details how a person reaches from one level of best practice to that of a more optimal level. This framework, we contend, is significant in its explanatory account of personal growth, an internal state of flourishing, and the achievement of exceptionality. This chapter conceptualizes the applicability of the Framework of Achievement Bests to the context of instructional designs. We highlight the tenet of element interactivity, which is integral to the design of a particular mathematics instruction and its potential effectiveness. Element interactivity entails the interaction between elements within a learning material. Owing to the limited working memory capacity, an instruction that incurs high level of element interactivity would impose high cognitive load leading to reduced learning. Our conceptualization postulates the possible alignment between suboptimal and optimal instructional designs with realistic and optimal levels of best practice, respectively. This postulation (e.g., suboptimal instructional design → realistic level of best practice), which recognizes the importance of cognitive load imposition, is significant from a practical point of view. By focusing on instructional designs, it is possible to assist individuals to achieve optimal best practice in learning.

Keywords: achievement best frameworks, cognitive load theory, appropriate instructional design, element interactivity, equation solving

1. Introduction

Effective learning in school contexts is an important notion to consider. By all account, effective learning entails personal experience of deep, mastery learning, improvement in cognitive skills (e.g., problem solving), and the stimulation of interest and intellectual curiosity. The product of effective learning, in this sense, may include an improvement in academic

performance at the end of the school term. Ineffective learning, by contrast, may result in loss of interest, engagement in maladaptive outcomes, and superficial learning. This recognition places emphasis on a need for educators and researchers, alike, to focus on motivational initiatives, pedagogical strategies, and educational programs that could foster *engagement of* and *preference for* effective learning.

Our postulated positioning, based on previous research undertakings in the area of mathematics [1, 2], is that *appropriate instructional designs* may serve to facilitate and promote effective learning. Instructional designs, an important element of pedagogical practices in the teaching and learning processes, are central to the achievement of effective learning. We contend that, in this case, a particular instructional design is efficient when it imposes minimal *cognitive load on an individual's processing of information*. Instructional designs that impose high levels of cognitive load, by contrast, are ineffective and inefficient for implementation and practice. This line of research development, in general, has notable implications for us to consider, especially in relation to Teacher Education Pre-service preparation and training.

This chapter then, in accordance with the scope of the edited book, explores the importance of comparative instructional designs in the context of mathematics learning. Drawing from our previous work, we focus on the development of a conceptualization that emphasizes on the choosing of an appropriate instructional design for implementation. This conceptualization, in particular, focuses on the *achievement of optimal best in mathematics* [3, 4], taking into consideration *the negative impact of cognitive load imposition* [5, 6]. Furthermore, arising from this discussion, we consider methodological and theoretical issues for continuing research development into the area of instructional designs.

2. Achieving optimal functioning

Achieving optimal best in different subject matters is a central feat of human agency. This personal attribute emphasizes an internal state of determination and resilience to achieve optimal functioning. *Optimal functioning*, in contrast to the experience of stagnation, places emphasis on an individual's quest to fulfill his/her personal and psychological needs. Importantly, perhaps, the accomplishment of optimal best indicates the maximization in capability that an individual may demonstrate [4]. In the context of schooling, for example, optimal best for a Year 8 student may involve his/her understanding of mathematics equations involving special features (e.g., $10\%x = 20$, solve for x) (Appendix A). This level of exceptionality of mathematics learning, as mentioned, reflects the student's fullest potential for the stipulated time point.

Optimal best, in essence, coincides with the theoretical tenets of positive psychology [7, 8], which emphasize the *importance of human proactivity*, *personal fulfillment*, and the *aspiration to lead fruitful and meaningful lives*. Optimal best, consequently, indicates the development and manifestation of virtues, inner strengths, and resilience, and the achievement of exceptionality. These attributes and/or characteristics are positive, in nature. In recent years, researchers have advanced the study of optimal best, theoretically, methodologically, and empirically. Phan and colleagues [3, 4], for example, have developed the *Framework of Achievement Bests*,

detailing an underlying internal mechanism that could explain how an individual reaches a state of optimal functioning. This framework is significant as it contributes to existing work [7–9], and advances the inquiry into the tenets of optimal best.

2.1. The Framework of Achievement Bests

The Framework of Achievement Bests, developed by Phan and colleagues [3, 4, 10], explores the personal experience of optimal functioning. Optimal functioning, according to the authors, is defined as an internal state of experience and accomplishment that reflects maximization in capability (e.g., a Year 8 student's indication to learn and understand linear equations that involve multiple solution steps (e.g., $4/x = 11$, solve for x). "What is the best that I can accomplish?", in this instance, is a question that indicates an individual's self-awareness of his/her potential best practice.

The Framework of Achievement Bests draws comparison with Fraillon's [27] theorization of *optimization*, which is a psychological process that focuses on an individual's optimal best from some point of self-reference. Phan and colleagues' [3, 4, 10] conceptualization of achievement bests depicts two major levels of best practice: (i) *realistic level of best practice* (i.e., denoted as RL), which entails what an individual is realistically capable of accomplishing, at present (e.g., what can I actually do, at present, in Algebra?; how much do I know…..?), and (ii) *optimal level of best practice* (i.e., denoted as OL), which is defined as an individual's accurate indication of projected accomplishment that is exceptional, in nature (i.e., as of today, what is the best that I can do for this topical theme, realistically?). Reaching an optimal level of best practice from a realistic level of best practice reflects, in this case, a state of flourishing or optimal experience. **Figure 1** illustrates the Framework of Achievement Bests, in its totality [4, 11].
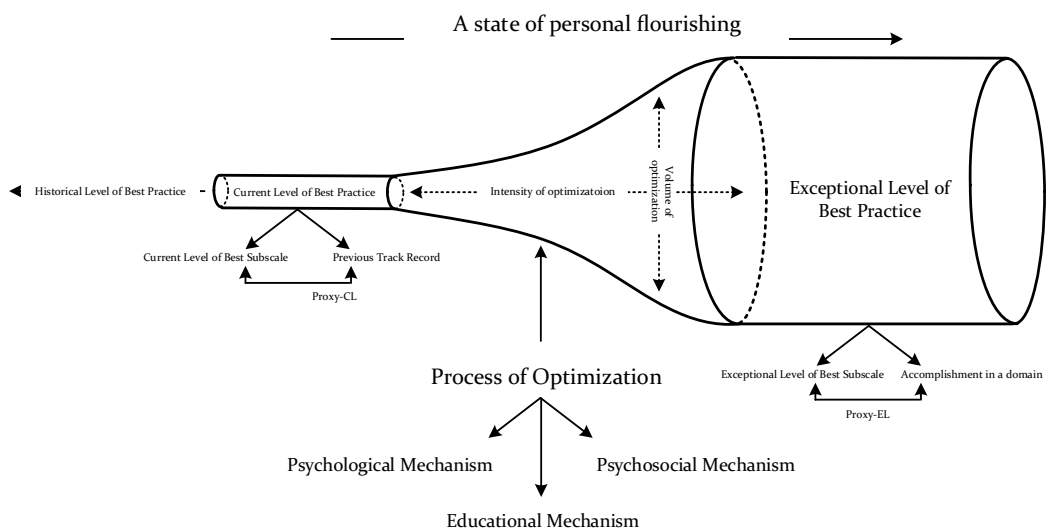

Figure 1. The Framework of Achievement Bests. Source: Adapted from Ref. [1].

The Framework of Achievement Bests is unique for its attempts to explain the "achievement" of optimal functioning. That is, from **Figure 1**, an individual's point of reference is his/her realistic level of best practice (note: as time progresses, an individual's realistic level of best practice becomes his/her historical level of best practice, which is defined as *previous record of accomplishment* in a subject matter). This level of best practice, consequently, serves as a source and/or a reference point by which an individual would use to formulate his/her optimal level of best practice. The *zone of optimization*, which refers to the "difference" or "range" between the realistic level and the optimal level of best practice (i.e., OL-RL), in essence, delves into the process of optimization. In other words, as Phan and colleagues explain, optimization is a psychological process that serves to optimize an individual's internal state of functioning to "progress" from one level to that of another level.

The psychological process of optimization, recently updated in terms of theorization [10], varies in terms of *intensity* and *scope* (or volume). The intensity of optimization emphasizes *the extent and amount of resources* (e.g., appropriate instructional design) needed to optimize an individual's state of functioning. The scope (or volume) of optimization, by contrast, focuses on the *amount of effort* and *time* (e.g., the extent to which a student is motivated to invest effort and time) needed to optimize an individual's state of functioning. Optimizing a small zone of optimization in mathematics learning (e.g., knowing how to solve one-step equations such as $x + 3 = 5$, to knowing how to solve one-step equations such as $x + 4 = -7$), for instance, may require only a small amount of effort and time, and/or the amount of resource (e.g., limited scaffolding from a teacher). Both equations (i.e., $x + 3 = 5$ and $x + 4 = -7$) share identical problem structure except that the latter equation has a negative number (i.e., -7), and thus may pose a difficulty for students [12]. By contrast, it will require more resources (e.g., effective instructional design), effort, and time to optimize a large zone of optimization in mathematics learning (e.g., knowing how to solve one-step equations such as $y + 3 = 7$ (**Figure 2(a)**, to knowing how to solve one-step equations such as $\frac{4}{a} = 2$ (**Figure 2(b)**). This is because the one-step equation such as $\frac{4}{a} = 2$ has more solution steps than the one-step equation such as $y + 3 = 7$, irrespective of the methods (i.e., balance or inverse). The differential efficiency between the balance and inverse methods will be discussed later. Similarly, in physical education,

(a) Balance method   Inverse method

Line 1	$y + 5 = 13$	(-5) on both sides	Line 1	$y + 5 = 13$	$(+5$ becomes $-5)$
Line 2	$-5 \quad -5$		Line 2	$y = 13 - 5$	
Line 3	$y = 8$		Line 3	$y = 8$	

(b) Balance method   Inverse method

Line 1	$\frac{4}{a} = 2$	$(\times a)$ on both sides	Line 1	$\frac{4}{a} = 2$	$(\div a$ becomes $\times a)$
Line 2	$\times a \quad \times a$		Line 2	$4 = 2 \times a$	$(\times 2$ becomes $\div 2)$
Line 3	$4 = 2a$	$(\div 2)$ on both sides	Line 3	$4 \div 2 = a$	
Line 4	$\div 2 \quad \div 2$		Line 4	$2 = a$	
Line 5	$2 = a$				

Figure 2. (a) One-step equation involving one operational and two relational lines. (b) One-step equation involving two operational lines and three relational lines.

optimizing an individual's functioning in a physical activity (e.g., running from 500 m to 5 km) may require much more effort, time, and resources. On this basis, the "quantitative" difference between the realistic level of best practice and the optimal level of best practice, which in this case reflects its complex nature, determines the intensity and scope of optimization.

In essence, the psychological process of optimization encompasses the utilization of resources, and the expenditure of time and effort in order to optimize an individual's internal state of functioning. Optimization, based on existing theorizations, involves more than just personal scaffolding from a capable authority figure [13]. According to Phan and colleagues' representation, there are three types of "mechanisms" [4] that operate to optimize a person's state of functioning. The sequencing of this psychological process is as follows:

i. The initiation and execution of *optimizing agents* (i.e., *psychological mechanisms*, *educational practices*, and/or *psychosocial mechanisms*) that operate to influence the internal personal processes for learning and performance. There are three types of optimizing agents, namely (i) *psychological mechanisms*, such as a person's self-efficacy beliefs for learning [14, 15], hope [16, 17], and motivation, in general [18], (ii) *educational practices*, such as instructional efficiency and appropriate pedagogical approach that enable better comprehension and understanding of the instructional materials [1, 4], and (iii) *psychosocial factors*, such as the impact of the home social environment that may shape a student's state of functioning [19].

ii. Upon the positive influences of optimizing agents, internal personal processes of *persistence* [20–22], *effort expenditure* [20, 23, 24], and *effective functioning* [25–27] are activated. This activation, in turn, plays a central role in motivating an organism to reach an optimal level of functioning.

Research development emphasizing the operational nature of optimization is in its early stage of evolution. In terms of empirical research, for example, a few researchers have used quantitative methodological designs to study the explanatory functioning of the three mentioned mechanisms [11, 28]. Phan and colleagues have used the Optimal Outcome Questionnaire (OOQ) [29] to explore the importance of "profiling of best practice" [4, 11], and the predictive and explanatory effects of the different types of optimizing mechanisms [28]. Aside from empirical research, it is also possible to explore optimal best practice and the operational nature of optimization from the perspective of conceptualization, using authentic contexts. In this section of the book chapter, we provide an in-depth discussion of a conceptualization of optimal best in the area of mathematics learning.

3. The importance of algebra

Mathematics educators acknowledge the prominent role of algebra in mathematics learning and curriculum development [30, 31]. They regard algebraic skills as a "gatekeeper" that facilitates the engagement of higher-order mathematical thinking skills [32]. Algebraic skills are useful not only for solving real-life problems (e.g., "If your father wants to increase your

weekly allowance of $20 by 5%, what is your new allowance?" [33] but also enable effective learning in comparable subject areas, such as Physics and Chemistry (e.g., "A solution contains 1.1 g of sodium nitrate, $NaNO_3$ in 250 ml of solution, what is the molarity of this solution?") [34–36].

Regarding the use of algebra to solve real-life problems, successful problem solvers differ from unsuccessful problem solvers in their use of *schematic knowledge* to set up an equation that could then generate a solution [36, 37]. However, unless the problem solvers possess *adequate equation-solving skills*, they are unlikely to obtain the solution even if they have succeeded in setting up an equation pertaining to the schematic knowledge. Since equation solving is an integral component of the algebra problem-solving process [38], it is timely that we propose *appropriate instructions* that could facilitate optimal learning experiences of equation solving. On this basis, reflecting the Framework of Achievement Bests, we contend that appropriate instructional designs could serve to optimize students' understanding of equation solving.

Referring to our previous mention, a conceptualization that involves a focus on instructional designs could in effect provide evidence that attests to the explanatory power of the Framework of Achievement Bests. In this analysis, we contend that appropriate instructional designs could serve as educational mechanisms to optimize students' learning experiences in mathematics. Appropriateness of an instructional design is determined, in part, from its inverse association with the *negative impact of cognitive load imposition* [5, 6]. In our recent studies, for example, we proposed a theoretical position, which posits that optimal instructions that impose low cognitive load may generate positive emotions, resulting in an increase in motivation to learn equation solving. By contrast, however, suboptimal instructions are more likely to result in high cognitive load imposition, which may then generate negative emotions and a decline in motivation to learn equation solving.

4. Cognitive load theory: a theoretical overview

Human cognitive architecture, compromising of both working and long-term memory, is central to the importance of *cognitive load theory* [5]. The working memory is severely limited in its capacity to process unfamiliar information [39]; however, this limitation disappears when familiar information is retrieved from the long-term memory for processing. By contrast, long-term memory has an unlimited capacity, which enables it to store a large amount of information for an infinite period. Cognitive load theory, proposed by Sweller [5, 40], is an instructional theory that attempts to explain why a specific instruction will or will not work.

Three types of cognitive load affect the design of a specific instruction:

i. *Extraneous cognitive load*, which is imposed by an inappropriate instruction. We can change the design of inappropriate instruction to reduce extraneous cognitive load.

ii. *Intrinsic cognitive load*, which is imposed by the inherent complexity of a learning unit (or a material). We can change either the design of the instruction [33, 41] or the knowledge base of a learner to reduce intrinsic cognitive load.

iii. *Germane cognitive load*, which entails an investment of cognitive resources to assist in the learning of relevant aspects of the instructional material. We can change the design of an instruction in order to increase germane cognitive load. For example, one way to improve problem-solving skills is to provide learners with variability practice, involving the identification of a category of problems that share a similar problem structure but have different contexts [42].

Recent research development on cognitive load theory has highlighted an important concept, known as *element interactivity*, that exists across the three types of cognitive load [43]. Element interactivity, in this case, emphasizes the *interaction that exists between elements within a learning material*. An element refers to anything that requires learning (e.g., a number, a symbol, a concept, a procedure, etc.) [44]. Under this conceptualization of cognitive load theory, the level of element interactivity determines the extent to which a particular type of cognitive load would exert its influence on the design of an instruction. Why is this the case? There are three possible reasons as to why this is the case: (i) the level of element interactivity determines the intrinsic nature of the material and, thus, the intrinsic cognitive load, (ii) the level of element interactivity determines, in part, the appropriateness and/or inappropriateness of an instruction and its extraneous cognitive load, and (iii) the level of element interactivity determines the beneficial design feature of an instruction and, thus, its corresponding germane cognitive load. Because cognitive resources, in the case of germane cognitive load, facilitate in the learning of relevant aspects of instructional material, germane cognitive load is not an independent source of cognitive load; rather, it is incorporated in the intrinsic cognitive load.

5. Element interactivity, learning, and understanding

Learning material reflects low-element interactivity knowledge if we can learn each element independently of another element [1]. In mathematical numeracy, a student can learn to recognize a number (e.g., 5) independently of another number (e.g., 9). Learning individual numbers therefore constitutes low-element interactivity knowledge, as each number is independent and may be learned in isolation. Moreover, because a student can learn to recognize individual numbers sequentially (e.g., "5" and then "6"), minimal working memory resources are involved when a student learns to recognize each number. Manipulation of multiple interactive elements simultaneously, by contrast, reflects high-element interactivity knowledge. In the case of learning how to solve a simple one-step equation, such as $x - 7 = 13$, a student would need to understand the role of the variable x, and the quantitative relationship between the elements, by which the left-hand side of the equation is equaled to the right-hand side. Manipulating multiple interactive elements simultaneously in order to solve an equation would impose a heavy cognitive load.

Because there is limited association between individual numbers, a student can learn to recognize a vast number of numerals individually, via memorization (e.g., rote learning). However, since multiple elements within a linear equation interact, a student must learn these elements simultaneously rather than individually. On this basis, learning to solve an equation may pose a challenge for a student because it requires him/her to understand the relation between

the multiple interactive elements. In essence, understanding applies only to high-element interactivity material, but not to low-element interactivity material. Mathematics learning normally involves students learning multiple mathematical concepts simultaneously, which consequently imposes high-element interactivity and high cognitive load [45]. Thus, for optimal learning experience, it is important that we design appropriate instructions that could minimize the burden of the working memory, which in turn would help students learn mathematical concepts.

6. Balance method, inverse method, and element interactivity

Based on the Framework of Achievement Bests [4], it is plausible to postulate that appropriate instructional designs and pedagogical practices could serve to optimize students' learning experiences in mathematics. This postulation reflects, in part, our previous research undertakings that involved secondary school students in Australia and Malaysia. We contend that pedagogical practices (i.e., instructional designs) used by teachers are comparative, resulting in perceived differences in terms of effectiveness. Cognitive load imposition [5, 43], as explained, may assist and/or determine the effectiveness of a particular pedagogical approach. In mathematics learning, the two popular methods that facilitate the acquisition of equation-solving skills are the *balance* and *inverse* methods (**Figure 2(a)**). The balance method is popular among Western countries [46], whereas some Asian countries (e.g., Singapore, Korea, and Japan) have introduced and preferred the inverse method in primary mathematics curriculum [47].

In this section of the book chapter, we discuss the characteristics of the balance and inverse methods for effective learning in mathematics. *Differentiation* between the two methods involves clarity and explanation of the solution procedure of one-step equations, which may involve understanding of the difference between *relational* and *operational lines* [2]. A relational line indicates the relationship between the elements on the left side of the equation, which is equaled to the right side of the equation (e.g., Lines 1 and 3 in **Figure 2(a)**). By contrast, an operational line refers to the application of a mathematical operation that changes the state of the equation, and yet at the same time preserves its equality (e.g., Line 2 in **Figure 2(a)**).

6.1. Balance method

In accordance with **Figure 2(a)**, Line 1 is a relational line and it involves six elements, consisting of y, 5, 13, and three concepts. These three concepts are as follows: (i) y represents an unknown number, (ii) the "=" sign describes a quantitative relation between elements, with the left side of the equation equals to the right side, and (iii) to find y, the learner needs to perform the same operation on both sides in order to balance the equation. A learner is required to coordinate the interaction between the six elements simultaneously. By contrast, Line 2 is an operational line that involves three elements and consists of a number (i.e., −5) and two concepts. The two concepts require the learner to cancel +5 with −5 on the left side of the equation, and to perform 13 − 5 on the right side of the equation in order to maintain the equality of the equation. Interaction between elements occurs on both sides of the equation when the

learner performs +5 with −5 on the left side of the equation as well as 13 − 5 on the right side of the equation. Lastly, Line 3 is regarded as a relational line; it consists of three elements such as y, 8, and one concept. The concept requires the learner to be able to process Lines 1 and 2 successfully so that he or she would then know that y equals to 8 is the solution.

6.2. Inverse method

The inverse method differs from the balance method for Line 2, but not for Line 1 and/or Line 3. Line 2 is an operational line and it involves four elements, consisting of y, 13, −5, and one concept. This concept requires the use of an inverse operation: move +5 from the left side of Line 1 to become −5 on the right side of Line 2 in order to balance the equation. Element interactivity occurs on one right side of the equation, where −5 interacts with 13. Overall, then, the inverse method incurs only half of the interactive elements as the balance method for the operational line (i.e., Line 2). Consequently, the inverse method imposes lower element interactivity and therefore lower cognitive load than the balance method.

6.3. Differential element interactivity between the balance and inverse methods

For both the balance and inverse methods of mathematics learning, understanding can only occur when learners simultaneously assimilate multiple interactive elements that arise within each line, and across the three lines of the solution procedure. For each relational line, the level of element interactivity arises from the interaction of elements within and between the left side and right side of the equation. Because the level of element interactivity is caused by the intrinsic nature of the equation, there is no differential element interactivity between the balance and inverse methods. By contrast, differential element interactivity between the balance and inverse methods favors the inverse method for the operational line. Interaction between elements occurs on both sides of the equation for the balance method, but only on one side of the equation for the inverse method. In other words, the balance method incurs twice as many interactive elements as the inverse method for each operational line. Nevertheless, for a simple one-step equation (e.g., $y + 3 = 7$) that consists of one operational line and two relational lines (**Figure 2(a)**), the total cognitive load required to process the level of element interactivity would expect to be low for both the balance and inverse methods. Indeed, research has shown that the inverse method is not better than the balance method for one-step equations that consist of one operational and two relational lines in the solution procedure [1, 48, 49].

The inverse method, as shown, is comparable with the balance method for simple one-step equations that involve one operational line and two relational lines (e.g., $y + 3 = 7$). The inverse method, however, is more advantageous when complex one-step equations consisting of two operational lines and three relational lines are involved (e.g., **Figure 2(b)** [48]. Compared with simple one-step equations, the level of element interactivity of the complex one-step equations for both the balance and inverse methods has increased because of an increase in both operational lines (2 vs. 1) and relational lines (3 vs. 2). Nonetheless, the ratio of the interactive elements between the balance and inverse methods remains the same (i.e., 2:1), irrespective of the number of operational line. Having said this, the total number of interactive elements for two operational lines is twice the total number of interactive elements for one operational line,

irrespective of whether it is the balance method or inverse method. Consequently, as revealed by prior studies, differential element interactivity between the balance and inverse methods favors the inverse method for complex one-step equations that involve two operational lines and three relational lines [1, 48, 49].

7. Special features

Aside from operational and relational lines, the presence of *special features* that involve complex elements also increases the complexity of one-step equations (see Appendix A). Operating with negative numbers is an integral component of middle-school mathematics curriculum. Having said this, operating with negative numbers continually poses challenges for school-age students [50, 51]. For example, in relation to multiplication, many students struggle with problems that have two negative numbers in algebraic expression problems (e.g., $-4(5x-2)$) [50]. Furthermore, aside from negative numbers, students also commit errors when operating with fractions [52]. Finally, to compound this difficulty, many students also fail to engage in mathematical reasoning that emphasizes the connection between fraction, percentage, and decimal [53].

On this basis, when the number of operational lines and relational lines is kept constant in one-step equations, operations with special features (see Appendix A) pose an additional challenge for students. For example, the equation $2x = 6$ shares a similar structural feature with that of the equation $10\%x = 20$ and, consequently, both have the same level of element interactivity. However, $10\%x = 20$ poses a greater challenge than $2x = 6$, owing to the fact that the latter equation has a percentage (i.e., 10%). The percentage (i.e., 10%) is regarded as a complex element because it comprises not only a number (i.e., 10) but also a percentage sign (i.e., %).

In summary, from the discussion so far, what can we say about the two pedagogical approaches: inverse versus balance? We argue that the inverse method, preferred by many Asian countries, is more effective than the balance method for two major attributes: (i) the number of operational lines and relational lines that exist and (ii) the presence of special features in the equations. Indeed, our previous research undertakings have provided evidence that the inverse method is better than the balance method for complex one-step equations that involve two operational lines and three relational lines. The inverse method, though, is comparable to the balance method for simple one-step equations that involve one operational line and two relational lines [48]. Furthermore, as our research showed, the presence of special features favored the inverse method when the number of operational and relational lines is kept constant [54].

8. Mathematical equivalence

Mathematics education researchers have regarded conceptual and procedural knowledge as essential components of mathematics proficiency [55, 56]. According to Rittle-Johnson, Siegler [57],

conceptual knowledge refers to the principle that governs a domain, and *procedural knowledge* refers to a sequence of actions to obtain a solution. The extent to which students have acquired procedural knowledge of one-step equations is reflected in their ability to solve one-step equations [1]. However, the acquisition of conceptual knowledge for one-step equations is concerned with students' understanding of the mathematical equivalence (i.e., "=" sign concept) with respect to both relational and operational lines [1]. Apparently, the relational understanding of the equal sign ("=") is critical to a student's success in solving equations [58].

We recently explored the issue of equal sign with reference to the two comparative pedagogical approaches, balance versus inverse. Using a two-group pretest-posttest experimental design, we found that the inverse group had no advantage over the balance group with regard to students' understanding of the equal sign for the relational line [1]. For example, presented with an equation such as $x + 6 = 11$, students could justify that the "=" sign indicated "balance, equal, etc." There are two ways of presenting the "=" sign concept with respect to the operational line: (i) balance method: $x + 3 = 5$, $x + 3 - 3 = 5 - 3$ and (ii) inverse method: $x + 3 = 5$, $x = 5 - 3$. When students were asked to judge whether a pair of equations was equivalent (e.g., balance method: $x + 3 = 5$, $x + 3 - 3 = 5 - 3$), both the balance and inverse groups performed better when the pair of equations was presented using the inverse method [1]. This evidence suggests that, in general, the differential element interactivity favors the inverse method for the operational line.

9. Achieving optimal best for one-step equations

Experience of optimal best in mathematics learning, according to Phan et al. [4], may involve demonstration of competence for not only the simple percentage problems but also percentage problems that are more complex. A realistic level of best practice, by contrast, reflects the demonstration of competence for simple percentage problems only. This conceptualization of achievement bests is significant and highlights variations in personal functioning in different subject domains of academia. A realistic level of best practice serves as a point of self-reference for determination and/or aspiration of an optimal level of best practice. A student's determination of his/her level of optimal best, in part, depends on what he/she is capable of, at present. In the context of mathematics learning, we postulate pedagogical practices (e.g., an appropriate instructional design), involving the impact of element interactivity and cognitive load imposition, that could associate with differing levels of best practice. For example, in relation to our discussion so far, we conceptualize that an optimal instructional design devised to assist in the achievement of optimal best in complex percentage problems would impose a lower level of element interactivity. Suboptimal instructional designs devised for a realistic level of best practice in simple percentage problems, by contrast, would impose a higher level of element interactivity. Furthermore, as noted, the level of element interactivity is directly proportionate to the degree of cognitive imposition [5, 6].

As discussed, the balance method imposes twice as many interactive elements as the inverse method for each operational. In regard to the acquisition of procedural knowledge in equation

solving, prior studies have revealed the superiority of the inverse method over the balance method for solving complex one-step equations, but not for simple one-step equations [48]. This testament has credence, given that the complex one-step equations have more operational lines (2 vs. 1) and relational lines (2 vs. 3) than the simple one-step equations. Moreover, the superiority of the inverse method over the balance method also extends to one-step equations involving special features (e.g., $12\%x = 28$).

In relation to the acquisition of conceptual knowledge in equation solving, we also found that the inverse method is better than the balance method when the "=" sign concept is applied to the operational line, but not to the relational line [1]. Thus, the inverse method is better than the balance method in facilitating the acquisition of both procedural and conceptual knowledge of one-step equations. This evidence provides empirical support for our proposition, regarding the *alignment between optimal instructions* (i.e., the inverse method) and *the demonstration of competence not only for simple one-step equations* (i.e., a realistic level of best practice) *but also for complex one-step equations* (i.e., an optimal level of best practice). At the same time, we propose an analogous *alignment between suboptimal instructions* (i.e., the balance method) and *the demonstration of competence for simple one-step equations* (i.e., realistic level of best practice).

An important question, certainly, entails the constructive application of the Framework of Achievement Bests in the context of academic learning. The Framework of Achievement Bests may provide grounding to assist educators in their teaching practices. This application may take into consideration the impact of cognitive load theory [5, 43], and its subsequent influence on the development of appropriate instructional designs. For example, the use of the inverse method is likely to assist middle-school students to achieve an optimal level of best practice to solve complex one-step equations. Consequently, competence in solving complex one-step equations may enable middle-school students to apply such skills to solve real-life problems. Consider a problem that reflects a real-life situation, for example: "Sally wants to invite her friends to her birthday party. She has 15 lollies and she wants to give three lollies for each friend. How many friends should Sally invite for her birthday?" A student, in this case, could use algebra to "set up" the equation – for instance: $15/x = 3$, solve for x. Because this equation involves two operational lines and three relational lines, it is obvious then that the balance method would reflect high cognitive load imposition, and subsequently hinder students' learning. The inverse method, by contrast, would associate with low cognitive load imposition, enabling students to solve such equation.

10. Cognitive load and motivation

Worked example is one of the popular instructional designs that has extensively been researched [59]. The merit of worked example depends largely on its design. For example, we could use illustrations (e.g., a diagram) to represent the problem situation of the specific problem, which in turn would increase germane cognitive load and hence improve students' problem-solving skills [33, 41]. Aside from worked example, other pedagogical strategies to increase germane cognitive load include the *incorporation of self-explanation* [60], and *high contextual*

inference problem contexts [61]. Investing germane cognitive load to assist learning is in accordance with *deliberate practice*, whereby engagement in practice activities serves to assist learners to develop *expertise* in the domain [62]. Having said this, difficulties may arise, as van Gog, Ericsson [62] argued, whereby learners' lack of motivation may deter their willingness to invest germane cognitive load, and/or to engage in deliberate practice activities with a view to improve learning.

A review of the empirical literature indicates that, to date, research development into the relationship between germane cognitive load and students' motivational beliefs is inconclusive. The *Goal-based Scenarios* (GBS) technique used in multimedia instructional designs, for example, is advantageous by motivating learners to study the instructional material, which then leads to improved understanding of the material, in total [63]. Nevertheless, despite this pedagogical initiative, there is little, if any, association between students' motivational beliefs and their perceived increase in germane cognitive load. In another study, however, Rey and Buchwald [64] found that the *probability of success*, a subdimension of motivation, was partially associated with the investment of cognitive load in learning. On this basis, evidence pertaining to the relationship between motivational beliefs and investment of germane cognitive load is inconclusive and requires further research development. For example, in a recent development, we proposed a theoretical model that conceptualized the relationships between optimal and suboptimal instructional designs (e.g., varying levels of element interactivity), and levels of best practice (varying levels of motivation) in the domain of percentage problems. Our theorization, as shown in **Figure 3**, is holistic and seeks to illuminate the combined effects of cognitive (e.g., cognitive load imposition), affective (e.g., a heightened state of anxiety), and motivational (e.g., personal self-efficacy beliefs) dimensions of effective learning to facilitate optimal best in the percentage problems.
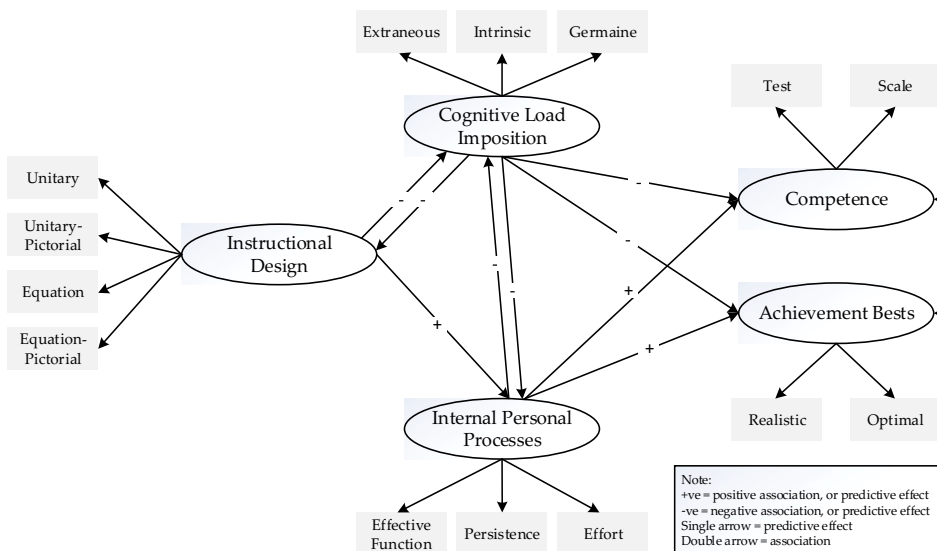

Figure 3. Proposed relationships between instructional designs, cognitive load, motivational processes, and achievement bests. Source: Adapted from Ref. [4].

11. Cognitive load imposition, internal personal processes, and achievement bests

An important focus of inquiry for development entails the potential associations between cognitive load impositions, internal personal processes of learning, and levels of best practice. This development, reflected in our recent conceptualization [4], indicates a concerted effort to integrate three major strands of research, namely cognitive processes, motivational beliefs and affective dimensions, and achievement bests. We urge researchers and educators to consider this theoretical model for research development. This empirical validation is worth noting and may indicate significance regarding the impact of an integration of different strands of inquiries. For example, in relation to affective responses, Ashcraft and Kirk [65] found that heightened anxiety levels negatively influenced the working memory capacity to process different types of mathematic-learning tasks. It is plausible to assume that a proportion of the work memory resources is used to "counter" the heightened state of anxiety, and on this basis, very little is left for processing of information. Similar evidence has been reported in a simulation training study in the area of Medical Education [66]. In this study by Fraser et al. [66], the authors found that negative affective responses (e.g., anxiety) increased extraneous cognitive load imposition, which then led to a decrease in the working memory capacity for learning. However, from the results, the relationship between cognitive load imposition, positive emotions, and learning outcomes was less predictable.

Our theorization, as shown in **Figure 3**, has a number of proposed associations for consideration. Central to our conceptual model is the recognition and inclusion of the two major theories: cognitive load imposition [5, 43] and achievement bests [4, 11]. Importantly, of course, a focus of inquiry may involve the use of both theories to inform the development of appropriate pedagogical practices (e.g., an instructional design) to promote effective learning experiences. For example, suboptimal instructional designs (e.g., the balance method), which directly associate with negative cognitive load imposition, could have adverse effects on motivational beliefs and achievement of optimal best (e.g., the achievement of realistic best practice only, which, in this case, may involve simple one-step equations).

In relation to what we have discussed so far, it is evident that in the context of mathematics learning, comparative instructional designs may have differing effects on students' understanding. Future research undertakings may pursue this inquiry, delving into the relationships between comparative instructional designs (e.g., balance vs. inverse) and levels of best practice. This postulation, emphasizing two contrasting associations (i.e., balance method ↔ simple one-step equations vs. inverse method ↔ complex one-step equation, where ↔ = closely aligned association), is of value for testament, especially when we consider its potentials to influence motivational beliefs and affective responses. Our argument, overall, based on previous research development, is that *the inverse method is superior to the balance method for effective learning*. This conviction, we contend, draws to the fact that the inverse method (i) imposes low cognitive load imposition, enabling a learner to understand both simple and complex one-step equations, (ii) elicits positive

affective responses (e.g., happiness), consequently as a result of a learner's ability to understand and to demonstrate the mastery of complex one-step equations, and (iii) reflects, correspondingly, a high score on the Optimal Best Subscale of the Optimal Outcomes Questionnaire (e.g., I feel positive when I am asked to solve complex one-step equations).

We recently developed, as mentioned, the Optimal Outcomes Questionnaire [29], which has two subscales, the Realistic Best Subscale (i.e., consists of eight items) and the Optimal Best Subscale (i.e., consists of eight items). Aside from focusing on the importance of "profiling" of best practice [11, 28], we contend that this questionnaire could measure and assess students' motivational levels and affective responses as a result of their exposures to different instructional designs. This recognition, which we recommend for further research advancement, indicates the importance of *diagnostic assessment* of motivational levels and achievement bests that arise from varying levels of cognitive load imposition.

Appendix

Solution procedure for one-step equations that have special features in the test items

Equation type	Balance method
Negative numbers	$a - 2 = 3$ $+2 \quad +2$ $a = -1$
A decimal number	$\frac{x}{0.5} = 5$ $\times 0.5 \quad \times 0.5$ $x = 2.5$
A percentage	$10\% \, x = 20$ $\div 10\% \quad \div 10\%$ $x = 200$
A fraction or a decimal as a solution	$3m = 2$ $\div 3 \quad \div 3$ $m = 2/3$
Pronumeral on the right side	$1 = 2p$ $\div 2 \quad \div 2$ $0.5 = p$
*Negative pronumeral	$6 - q = 10$ $-6 \quad -6$ $-q = 4$ $\div(-1) \quad \div(-1)$ $q = -4$
*Pronumeral as a denominator	$\frac{4}{a} = 2$ $\times a \quad \times a$ $4 = 2a$ $\div 2 \quad \div 2$ $2 = a$

Note: The solution procedure of those equations marked by * has two operational lines (e.g., −6 on both sides, and ÷(−1) on both sides) and thus impose higher element interactivity than other equations that have one operational line (e.g., +2 on both sides).

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The societies of the twenty-first century are subject to social, cultural, political, and economic changes. In this context, the school is asked to educate the future citizens in the present. To respond to this kaleidoscopic reality, the school is immersed in a pedagogical revolution. In this book, the reader will find a selection of avant-garde research works from different disciplines and contexts, which have their epicenter in the school and in the faculties of education. New issues in pedagogy and education, and new roles of teachers and students, are discussed in a global and diverse context. And new methodological and formative proposals are also proposed to build the ideal school and the ideal teacher, from the initial and continuous teacher training.

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