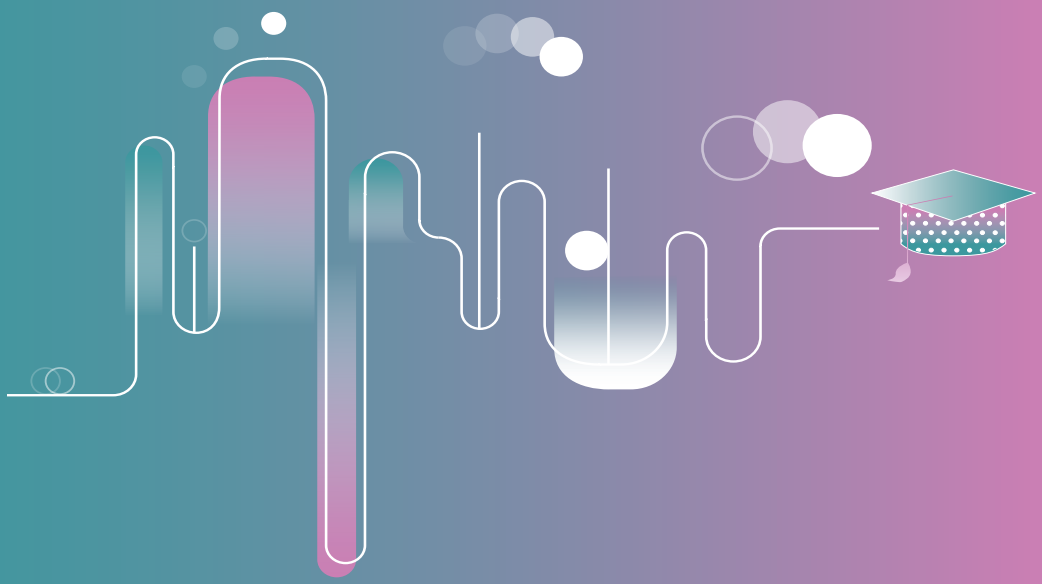
Studies on Quality Teachers and Quality Initial Teacher Education

KEY CONCEPTS SERIES

Edited by
Joanna Madalińska-Michalak

TEPE Network
Teacher Education Policy in Europe



FRSE Publications

Studies on Quality Teachers
and Quality Initial Teacher Education

Studies on Quality Teachers and Quality Initial Teacher Education

Edited by
Joanna Madalińska-Michalak

TEPE NETWORK
Teacher Education
Policy in Europe

FRSE Publications
Warsaw 2020

KEY CONCEPTS SERIES. VOL. 10
Studies on Quality Teachers and Quality Initial Teacher Education

Edited by:	Joanna Madalińska-Michalak
Reviewed by:	Erika Löfström
Co-operation:	Agnieszka Rybińska
Proofreading:	Anthony Wright
Production editor:	Barbara Jędraszko
Co-operation:	Karolina Kwiatosz
Design:	Diana Makulska/Podpunkt
Cover design:	Dorota Zajączkowska
DTP:	RZECZYOBRAZKOWE
Printed by:	Drukarnia KOLUMB Chorzów
Publisher:	Foundation for the Development of the Education System National Agency for the Erasmus+ Programme Al. Jerozolimskie 142a, 02-305 Warsaw www.frse.org.pl | kontakt@frse.org.pl

ISBN 978-83-66515-31-4
doi: 10.47050/66515314

This publication has been developed with the financial support from the European Commission in the framework of the Erasmus+ programme. The information and views set out in this publication are those of the authors and the European Commission may not be held responsible for the use, which may be made of the information contained herein

Free copy

Citation:
Studies on Quality Teachers and Quality Initial Teacher Education, J. Madalińska-Michalak (ed.), Foundation for the Development of the Education System, Key Concepts Series, vol. 10, Warsaw 2020, doi: 10.47050/66515314.

Table of Contents

Acknowledgements

This book was completed with the contribution and assistance of many people. I wish to acknowledge and thank the many individuals who shared their expertise, and donated their time and energy to support me in the editorial work on this book. Firstly, I would like to express my sincere gratitude to my colleagues from the Teacher Education Policy in Europe (TEPE) Scientific Network, who deserve recognition for acting as the main inspiration for this book. The 2019 annual TEPE Conference acted as a platform for the book contributors to present their research, and the TEPE Board Members provided all the necessary academic support to review the abstracts, advise on the themes selected and suggest valuable feedback throughout.

Secondly, I would like to thank Professor Erika Löfström from the University of Helsinki, the book reviewer, for her invaluable comments on the book and suggestions for its improvement.

I would like to express my sincere appreciation to each author of the book's chapters for sharing with the readers their knowledge and expertise in the field of teacher education, for their contributions to the discussion on how to best ensure that teachers and teacher educators are able to meet the challenges of the contemporary society head-on, and for their concern about understanding today in order to build our future better. I also want to thank them for their invaluable co-operation throughout the whole publication process of the book.

Finally, I would like to extend my special thanks to the publisher of this monograph – the Foundation for the Development of the Education System.

Warsaw, 20 May 2020 *Joanna Madalińska-Michalak*

Introduction
Quality Teachers and Quality Initial Teacher Education

Joanna Madalińska-Michalak

The concept of quality in teaching and teacher education is complex and elusive (Imig & Imig, 2007, p. 99). This complexity is because teacher quality and quality teacher education may hinge on myriad different perspectives, ranging from an emphasis on teachers' qualifications, competences, motivations, engagement, and credentials to teachers' cognitive and affective resources (i.e. teachers' knowledge, awareness, skills, attitudes, emotions), as well as teachers' work and performance in actual school conditions and educational contexts and teachers' impact on student educational outcomes (Wang et al., 2011, pp. 331–333).

Despite the observed conceptual ambiguity, no one seems to be against "quality teacher" and "quality teacher education", or even "high-quality teacher education". Raising teacher quality and reforming teacher education has earned considerable attention in the research literature, policy, and practice. There is an increased focus on policy reforms to improve teacher quality and a greater emphasis on quality assurance processes in teacher education. At the same time, teaching in today's complex globalised world is acknowledged as challenging and ever-changing. Teaching is perceived as more than prescribed knowledge delivered using a toolbox of teaching strategies. The dynamic nature of teaching and the many roles required of a teacher direct our attention to individual teacher and student differences, the relationships between them and the context in which teaching and education take place, as well as to the current status and prestige of teachers and teaching (Hargreaves, 2009, pp. 217–229).

As Linda Darling-Hammond et al. (2017) identified in high-performing systems, the policies that shape the teaching force and

the quality of work of teachers are those relating to teacher recruitment; initial teacher education, teacher induction and mentoring; teachers' continuous professional learning; teacher appraisal; and career and leadership development. These policies are mutually supportive and affect each other in a direct manner. Policy systems that support high-quality teaching practices are extremely important and they are characterised by knowledge expansion and change. What are teachers expected to teach students entering school today? We see that teachers may well work in jobs that do not yet exist, so they need to be able to find and evaluate knowledge on new ideas, answers and solutions. Moreover, societies are becoming increasingly diverse, and people with different perspectives and cultures bring new ideas and possibilities. The kind of teaching which is required in this context is challenging and dynamic.

Teachers need to "enable very diverse students to learn higher--order skills, so they themselves need a range of new skills; be able to understand the content more deeply and flexibly; understand how children learn and develop in cultural contexts; develop effective teaching strategies that foster reasoning and incorporate the appropriate technologies in their practice. Policy must thus be directed toward the development of a teacher workforce that is able to make the best decisions about teaching based on the expertise they have nurtured from their training and the wisdom they have accumulated from their experiences. Apart from having a strong teaching workforce, policies must also focus on how to develop teaching contexts that enable good practice. In the policy design process, the learning environment and the teaching context must be acknowledged as vital components of effective teaching as the qualities of individual teachers" (Attard Tonna & Madalińska-Michalak, 2018, p. 15).

This book, *Studies on Quality Teachers and Quality Initial Teacher Education*, is directly connected with the book *Studies on Quality Teachers and Quality In-service Teacher Education* (Madalińska--Michalak, 2020). Both books focus on original and research-informed writings related to prospective teachers, teacher educators, and teachers, and they address teacher education in the 21st century. These books adopt a comprehensive definition of the term "teacher education". According to this definition, teacher education is understood as an education that includes a pre-service stage, an induction

stage, and the continuing professional development of the teacher. Teacher education is perceived as a highly complex process that raises many challenges as well as many opportunities in the process itself. Therefore, the book offers to go beyond a static understanding of teacher quality and focuses not only on initial teacher education but also and at the same time on the contribution of faculties and schools of education to the development of teachers during their careers. The book proposes to answer the following main questions, namely: What is high-quality teacher education? What does it take to educate high-quality teachers? What can be done to create such systems where every learner can have well-trained, qualified, and motivated teachers who promote inclusive and equitable quality education for all? How do the working conditions of teachers influence teacher quality?

The distinctiveness of the booklies in the comprehensive and interconnected ways in which teaching and professional learning in teacher education in Europe and beyond are seen. In the face of global challenges and opportunities and local contexts, it is important to address teaching and learning in teacher education as it relates to different levels of education as well as to opportunities for future teachers, teachers and teacher educators to learn and develop. A high-quality teacher workforce requires deliberate policy choices and the building of human resource systems as well as concentrating on attracting, preparing, and supporting high-quality teachers and nurturing educational leadership at different levels of the education system.

The present volume, *Studies on Quality Teachers and Quality Initial Teacher Education*, is dedicated to initial teacher education. Approaches to pre-service teacher education are diverse, and examinations of the various practices in different countries indicate that initial teacher education can still be perceived as "training" or an "apprenticeship" (Reid, 2011, p. 308), or highlight "the professional standard approach", "the skilled artisan approach", or "the inquiry-based approach" (Reid & O'Donoghue, 2004, pp. 561–562). In presenting examples of solutions in policy and practice, and the trends in research on future teachers and teacher education, the vast variation in these areas and the recognition that some may stand in direct contrast to others are acknowledged in this book. The contributions deal with the challenges and opportunities of teaching and learning in initial teacher education in a globalised era.

The content of the book leads us to the question: How do we see education, the teaching profession and teacher education not just for the here and now, but also for the unknown and inevitable future? This question has significance, especially in a time when our current professional and personal situation is extremely challenging due to the Covid-19 crisis around the world. Around 63 million primary and secondary teachers around the world have been affected by school closures in 165 countries due to the Covid-19 pandemic. There are a number of specific challenges we have to cope with regarding distance learning for students in confinement, with or without the use of digital technologies, providing adequate professional tools, support and training for teachers and teacher educators, and putting equity at the heart of education responses.

While the contributions were written before the global Covid-19 outbreak, a number of them address issues that have a highlighted relevance for post-pandemic societies, which can be seen in Sina Westa's chapter on professionalisation through internationalisation at home, Michał Pachocki's chapter on teacher mobility and their training abroad, and Tania Alonso-Sainz and Bianca Thoilliez's chapter on the necessary virtues to address the moral density and social responsibility that teaching implies as a professional activity. Other contributions highlight research findings that raise new questions on topics related to post-pandemic initial teacher education and society: assessment in initial teacher education (Cláudia Pinheiro, Maria Assunção Flores, Joanna Madalińska-Michalak), collaborative practices and action research (Ildikó Zank), teachers' development standards (Kinga Białek), research-based teaching and transformative learning (Joanna Pitura), explicit, socio-constructivist and transmissive approaches to teaching and learning (Chloé Gravé, Marie Bocquillon, Nathanaël Friant, Marc Demeuse), new kinds of learning environments (Giselle Tur Porres, Aliya Bukusheva, Laura Sara Agrati, Viviana Vinci), epistemological reflection (Dorota Zdybel), and motivation, engaged and reflective teaching competences (Anna Aleksanyan). While these contributions naturally did not anticipate the pandemic, they are likely to trigger topical reflections in the reader.

The situation we have now calls for (re)imagining and remaking teacher education. Nowadays, it is not enough just to discuss preparing teachers to teach at school; we should have a real debate on how

to educate teachers across their careers in such a way that they can serve society as best as they can, long beyond the 21st century. Teachers and teacher educators have to face changes taking place at school, in its surroundings, and in the expectations directed towards them from different subjects of education, namely: students, parents, policy makers, government, and civil society. Teacher educators should be able to recognise these expectations and understand these changes, prepare teachers for new challenges, and help them to develop the appropriate competences and reflect on their values.

Teachers are universally expected to develop and demonstrate appropriate personal and professional values, and yet these values are only weakly defined. While some national governments rely on cultural traditions to guide values in education, others directly intervene through policy changes, trying to shape the values promoted by schools and teachers. At the institutional level, school leaders vary in their efforts and strategies to encourage reflection, debate and inquiry by teachers to help develop shared professional values as a school within its local community. We see that there is a huge need to focus on explorations of personal and professional values, and on their implications for teacher education, teachers' professional learning, school leadership and educational policy.

The present chapters were selected through submissions elicited from a call for abstracts to scholars concentrated around the Teacher Education Policy in Europe Scientific Network (TEPE Network), and its annual conference was organised by the Faculty of Education, University of Warsaw, Poland and the Foundation for the Development of the Education System (FRSE), Poland, in co-operation with the Pedagogical University of Cracow, Poland. The conference was held from 16–18 May 2019 in Cracow, which is the second-largest city in Poland and the country's former capital.

The TEPE Network is an academic network that brings together teacher educators, educational researchers, policy makers, teachers and practitioners from Europe and beyond to discuss and identify key elements that contribute to strengthening teacher education, and the quality and professionalism of teachers in schools. The TEPE Network is dedicated to advancing research in and on teacher education that can influence policy making. The network builds on previous European collaborative projects in the field of teacher education policy

– principally the Thematic Network on Teacher Education in Europe (TNTEE) funded by the European Commission (1996–1999) and the European Doctorate in Teaching and Teacher Education (EUDORA) project funded by the European Commission (2000–2005).

The TEPE Network's annual conferences show that, in the past 13 years, the network's initiative has established firm roots, and we can notice that the number of TEPE supporters and contributors has continuously grown year after year. The TEPE conferences show that the manifold dimensions of teacher education are increasingly attracting the attention of researchers, teacher educators, policy makers and prospective and in-service teachers. A significant feature of contemporary theory, research and practice in the field of teacher education is consensus on the value of exploring the diversity of international experiences for understanding the dynamic process of the development of education systems in different parts of the world with a particular focus on the role of the teacher and teacher education.

The theme of the 13th TEPE Network conference, "Quality Teachers and Quality Teacher Education: Research, Policy and Practice", encouraged academics, teachers, teacher educators and education officials to present their research and engage in discerning discussions about their work, their concerns and their visions for school education, teachers and teacher education. The theme further opened the debate related to the elusive concept of quality teachers and quality (in) teacher education, and also to lifelong opportunities for all teachers to learn and to grow.

The following five sub-themes were established to explore the general theme of the conference:

1. Exploring international and European perspectives on quality in education and teacher education and their impact on policy;
2. Reforming teaching and teacher education towards high-quality education for all;
3. Raising teacher quality: attracting, supporting and preparing a diverse student teacher population;
4. Strengthening teacher education and the teaching profession: conditions for quality teaching and learning;
5. Developing cultures of sharing and collaboration as a means of supporting teachers' professional learning and development.

The submitted abstracts were selected by blind review by respected scholars whose expertise I would like to duly acknowledge. The chapters are based on high scholarly quality and relevance to the book's two volumes and the objectives of the book. The selection process resulted in invitations for chapters from a range of countries, namely Armenia, Belgium, Ecuador, France, Germany, Greece, Hungary, Ireland, Italy, Oman, Poland, Portugal, Russia, Slovakia, Spain, Turkmenistan, Ukraine, and the United Kingdom. It is worth pointing out that contributions are also included from countries that have generally been less visible in the international literature devoted to the issues of teachers and teacher education (e.g. Oman, Turkmenistan, Armenia, and Ukraine). The authors of the book, experts in the field, provide us with insights, perspectives, and policy initiatives as to how the issues of quality teachers and quality teacher education are being addressed in their respective countries. The book is targeted at a global readership and the global community of scholars who share our concerns over the current conditions of teachers' work, teacher education, and teacher education policies, research, and practice.

References

- Attard Tonna, M. and Madalińska-Michalak, J. (2018). Teacher education – perspectives and inspirations. In: M. Attard Tonna, J. Madalińska-Michalak (eds.), *Teacher Education Policy and Practice. International Perspectives and Inspiration* (pp. 11–21). Warsaw: Foundation for the Development of the Education System.
- Darling-Hammond, L., Burns, D., Campbell, C., Goodwin, A. L., Hammerness, K., Low, E.-L., McIntyre, A., Sato, M. and Zeichner, K. (2017). *Empowered educators: How high-performing systems shape teaching quality around the world.* San Francisco: Jossey-Bass.
- Hargreaves, L. (2009). The status and prestige of teachers and teaching. In: L.J. Saha, A.G. Dworkin (eds.), *International Handbook of Research on Teachers and Teaching* (pp. 217–229). Dordrecht: Springer Science + Business Media LLC.
- Imig, D.G and Imig, S.R. (2007). Quality in teacher education: Seeking a common definition. In: T. Townsend, R. Bates, *Handbook of teacher education: Globalization, standards and professionalism in times of change* (pp. 95–112). Dordrecht: Springer.
- Madalińska-Michalak, J. (ed.) (2020). *Studies on Quality Teachers and Quality In-service Teacher Education*. Warsaw: Foundation for the Development of the Education System.

→ Reid, A. (2011). A practice turn for teacher education?, *Asia-Pacific Journal of Teacher Education*, *20*, 559–570.
→ Reid, A. and O'Donoghue, M. (2004). Revisiting enquiry-based teacher education in neo-liberal times, *Teaching and Teacher Education*, *20*, 559–570.
→ Wang, J., Lin, E., Spalding, E., Klecka, C.L. and Odell, S.J. (2011). Quality teaching and teacher education: A kaleidoscope of notions, *Journal of Teacher Education*, *62*(4), 331–338.

Professionalisation through Internationalisation in Teacher Education

The International Project (IPC) as an Example for "Internationalization@home"

DOI: 10.47050/66515314.18–41

Sina Westa

Professionalisation is a key factor in teacher education and can add towards educating quality teachers. Internationalisation can foster this process, especially in today's increasingly diversified teaching environment. Being confronted with other education systems, ideas on pedagogy, educational values and traditions can provoke (future) teachers to reflect on their own approaches and beliefs and provide them with a wide range of inspirations on how to handle new and unexpected changes in their future classrooms. Taking Goodwin's five knowledge domains – personal, contextual, pedagogical, sociological and social knowledge – plus an additional sixth domain – innovative knowledge – as a theoretical framework, this paper analyses how the internationalisation of teacher education can support the process of professionalisation. This theoretical analysis is exemplified by using an "Internationalization@home" project coordinated by Prof. Dr. Klaudia Schultheis at the Catholic University of Eichstätt-Ingolstadt as a case study. It highlights how internationalisation can be integrated into teacher education programs and shows that such an international project can lead to increased knowledge in the six knowledge domains.

Keywords:
globalisation
internationalisation
Internationalization@home
professionalisation
teacher education

Introduction

"Quality Teachers and Quality Teacher Education: Research, Policy and Practice" was the title of the TEPE conference in 2019. This provides a good starting point for this paper as it highlights two important aspects. First, it implicitly suggests that quality teachers are strongly connected to quality teacher education, and second, it shows that quality teacher education must be looked at from different perspectives – informed by research, supported by policies, and applied in the practices of teacher education and, of course, teaching itself. Still, the question remains: What does it mean to provide quality teacher education and to foster quality teachers? This question gains even more complexity when we look at the changes in our classrooms. Teachers that were educated 40 years ago, for example, did not have to think about digitalisation in their teacher training, but they are facing this challenge today in their everyday work. This means that teachers have to respond to new developments in society, childhood, technology, and so forth throughout their whole career. In other words, their education, or better self-education, never ends. Therefore, providing high-quality teacher education certainly means educating (future) teachers who are aware of changes in their environment and who are able to find ways and solutions to how to respond to them in a professional way.

In this paper, I will argue that the concept of professionalisation in teacher education can add towards educating quality teachers. Internationalisation can foster this process, especially in today's increasingly diversified teaching environment. Being confronted with other education systems, ideas on pedagogy, educational values and traditions can provoke (future) teachers to reflect on their own approaches and beliefs and provide them with a wide range of inspirations on how to handle new and unexpected changes in their future classrooms. Thus, the internationalisation of teacher education can add towards professionalisation. One good example of how internationalisation can be applied in teacher education is the International Project (IPC), which will serve as a case study to highlight how internationalisation and professionalisation can be brought together.

Professionalisation and Internationalisation in Teacher Education

Professionalisation in Teacher Education

When considering professionalisation in teacher education, one first needs to clarify what a profession is. From a sociological point of view, an occupation was traditionally (in the 1950s and 1960s) considered a profession when it aligned with certain criteria. Those criteria most often included practices that are based on theoretical knowledge, the certification of those skills by examination, and an influential professional organisation (Millerson, 1964). As teaching in most countries did not match all criteria, it was considered a "quasi-" or "semi--profession" (Whitty, 2006). With teachers endeavoring to meet the full catalog of criteria of a profession, the process of professionalisation started in teacher education. Even if, in later years, sociologists acknowledged that the list of characteristics for a profession is rather normative and is not fitting for all professions (ibidem), the term "professionalisation" still prevails in teacher education.

Today's perception of a profession is moving away from the traditional definition that emerged in the medical and juridical context and is more sensitive to different occupational particularities. Whitty suggests that "a profession is whatever people think it is at any particular time and that can vary. So the fact that we normally talk about the teaching profession means that teaching is a profession, even when we cannot tick off those core characteristics listed earlier" (ibidem, p. 282).

He refers in this respect to Hanlon, who describes his use of the term as follows: "[W]hen I discuss professionals I am talking about groups such as doctors, academics, teachers, accountants, lawyers, engineers, civil servants, etc., that is those groups commonly thought of as professional by the lay public, academics, the professionals themselves and so on" (1998, p. 45). Following the propositions of Whitty and Hanlon, we can thus define teaching as a profession.

Another feature of a profession that is traditionally brought into the discussion is autonomy. In this respect, a profession is independent from the state and economy and bases its actions and decisions on self--governance (Whitty, 2006). Typically, members of a profession were self-employed in the past, but with industrialisation, the majority of "professionals are directly employed and/or regulated by the state"

(ibidem, p. 283). Dale (1989) distinguishes two dominant forms of autonomy for today's professionals: first, licensed autonomy, as, for example, in law, and medicine, and second, regulated autonomy, as, for example, in teaching. In most countries, teachers are employed by the state and have to orient their teaching towards a curriculum, and thus they are regulated by the state. Nevertheless, they do have a certain degree of freedom within their classrooms. The ILO/UNESCO support this claim in their recommendation concerning the Status of Teachers from 1966 by stating: "The teaching profession should enjoy academic freedom in the discharge of professional duties. Since teachers are particularly qualified to judge the teaching aids and methods most suitable for their pupils, they should be given the essential role in the choice and the adaptation of teaching material, the selection of textbooks, and the application of teaching methods, within the framework of approved programmes, and with the assistance of the educational authorities" (ILO/UNESCO, 2008 [1966], p. 32).

By doing so, they are in line with Whitty and Hanlon in acknowledging teaching as a profession. The recommendation also makes it clear that teachers do have regulated autonomy as they should seek the assistance of educational authorities and work within approved programmes. Thus, their decisions are not entirely based on their professional judgment but are also defined by an authority.

In the literature, several terms are used to describe the sphere of professionalisation. As already outlined, there are the concepts of "professional", "semi-professiona" and "quasi-professional". Next to this, based on the work of Eric Hoyle, some authors distinguish between professionalism and professionality. According to Holyle (1974), professionalism is a rather political concept as it refers to the strategies, actions, and rhetoric of professionals that are targeted to improve the situation and/or status of their profession. Professionality, on the other hand, is an expression for the skills, knowledge and procedures that are used by a professional to fulfill their "professional duties", to use the words of the ILO/UNESCO recommendation concerning the Status of Teachers. Even if the political and policy spheres highly impact on teacher education and teaching, the latter is more relevant to this paper. In this respect, professionalisation in this context does not refer to the political dimension of professionalism that secures teachers' status as professionals. Rather, it relates to the meaning

of professionality – the process of becoming a professional during one's teacher education and its continuation during their entire career.

The underlying idea is thus a pedagogical conception instead of a political discussion. Pedagogy in this context can be understood as "the observable act of teaching together with its attendant discourse of educational theories, values, evidence and justifications. It is what one needs to know, and the skills one needs to command, in order to make and justify the many different kinds of decisions of which teaching is constituted" (Alexander, 2009, p. 928).

Putting this pedagogical view in the centre of the discussion, teacher educators and teachers themselves can be described "as responsible for advancing the capacities and potentialities of the next generation. This is a very large responsibility, and it is the essence of academic duty" (Kennedy, cited in: Fitzmaurice, 2008, p. 347). This aspect has a double meaning for teacher educators as it hands them the duty to act accordingly as well as to educate their students with regard to this responsibility. In other words, it is another value inherent in the profession of teacher educators alongside that of teaching content to their students.

In order to enable students to act pedagogically and professionally, many teaching standards have picked up the idea of professionalisation. The Interstate New Teachers Assessment and Support Consortium (INTASC) Standards are one of the most commonly known sets of standards, and they are also reflected in the standards of other countries than the USA. The Professionsstandards of the Pädagogische Hochschule Schwyz are an example of their adaption in another context. Concerning professionalisation, they include the following points:

Standard #9:

Professional Learning and Ethical Practice

The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner. [CCSSO, 2013, p. 41]

Professional Standard #9:

Reflects on Own Experiences (Professionality)

The teacher continuously reflects on the effects of his/her own decisions and activities on others (students, parents and other

teachers) and approaches further education in a professional manner, which means actively and responsibly. [Pädagogische Hochschule Schwyz, 2017, p. 44, transl. by the author]

Summarising the key points of these standards, being or acting as a professional involves a process of life-long learning, self-evaluation and critical self-reflection, being adaptive to diverse cohorts of learners, and pursuing further education in accordance with emerging needs. The previously mentioned aspect of autonomy comes into play in these excerpts as well. Both standards assume a proactive approach of the teacher towards professionalisation and, thus, autonomous behaviour. Still, the question "What does it mean for teacher educators to foster such professionality in teacher education and beyond?" remains.

New Challenges for Teacher Education, Teaching and Learning

This question is not new to teacher educators but becomes even more complex in a globalised world that is constantly changing. Goodwin (2010) describes six aspects that are changing our societies in the global age:

1. Human mobility on a global scale that is multidirectional, transiently permanent (meaning long periods abroad without the intention/opportunity/possibility to permanently relocate), culturally inclusive, and life-embedded;
2. Transnational employment in all sectors ranging from highly--skilled to minimally-skilled workers;
3. The forced migration of people triggered by war, natural disasters, economic needs and so forth;
4. An even wider gap between the rich and the poor, generated by massive income growth in some sectors;
5. Global competition between nations for resources such as oil;
6. Technological advancements, especially in the area of communication.

All of these have an impact on schools, teaching and learning. Increased mobility leads to diversified and multicultural societies that are also represented in classrooms around the globe. Today's teachers might have children in their classrooms who come from different cultural

backgrounds and social classes and speak different languages. They might have to deal with traumatised children who have experienced war, natural disasters, or great poverty. Some of their students might have "nomadic" histories of constant moves between countries due to their parents' work, while others might have never left their own small community due to a lack of financial resources and/or opportunities. This diverse studentship needs to be addressed in an individualised way in order to give children the best chance to profit from their education.

Increased global competition and global developments can lead towards increased fears in children, and this needs to be addressed. Burnham points out that "the causes of contemporary fears of youth vary; however, many fears have emerged across time because of children's and adolescents' exposure to situations on a frequent basis" (2009, p. 87). Such situations can be rooted in global events, such as, for example, pandemic outbreaks or natural disasters, television and media exposure, especially mass media, and societal changes. As new political and societal changes as well as global problems such as climate change and social inequality emerge or amplify, children develop new fears, assumptions and ideas about the world around them, and it is the teacher's responsibility to respond to them sensitively.

As already mentioned, (social) media play a crucial role in this respect, as while modern communication technologies lead towards new problems such as cyberbullying (Li, 2007), they also provide chances such as enhanced communication between different cultures and countries without any time delays or spatial hurdles (Goodwin, 2010). This can support children who have moved between countries and can serve as a valuable resource for teaching in an intercultural context. It also means that students are exposed to news and developments far away from their homes, and this requires them to deal with global challenges and developments. In other words, they are not only part of their local community but inhabit a global space. With respect to professionalisation, teachers need to take all these developments into account when planning, conducting and evaluating their own teaching. This means that teachers need to be aware of societal, political, and technological changes on an individual, local, and global scale to adapt their own practices.

As teacher educators cannot predict what societal, political or technological changes will happen in the future, it is an impossible task to prepare prospective teachers for all possible situations or types of students they might encounter in their classrooms. Thus, the question is: What knowledge, skills, competences and attitudes do teachers need to help their prospective pupils to "learn about the world, from the world, and with the world" (Devlin-Foltz, 2010, p. 113) and to become global citizens (Mahon, 2010)? Like our children, do our future teachers need "the knowledge, skills, and values that many now describe as "global competence" to be responsible citizens of the world and their own multicultural communities, and to be effective participants in the global marketplace" (Devlin-Foltz, 2010, p. 113)?

In order to prepare prospective teachers for a globalised world with an unknown future, Goodwin (2010, p. 22) suggests five knowledge domains:

1. Personal knowledge: autobiography and philosophy of teaching;
2. Contextual knowledge: understanding children, schools, and society;
3. Pedagogical knowledge: content, theories, and methods of teaching, and curriculum development;
4. Sociological knowledge: diversity, cultural relevance, and social justice; and
5. Social knowledge: co-operative, democratic group process, and conflict resolution.

Even if Goodwin's work is based on her and her colleagues' own experiences and research in the US context, the mentioned knowledge domains are widely acknowledged in the academic community (see Ochoa, 2010; Budak, Çakmak & Gündüz, 2015; Pachler & Redondo, 2015). Thus, they seem to be a good starting point to respond to challenges brought through globalisation on different levels to teaching and learning. The strengthening of one's own abilities in these domains is based on thorough (self-)reflection and the will for self-development, but they "do not take place in a vacuum" (Kissock & Richardson, 2010, p. 92). In other words, they need a context to be developed in; they are based on past and present experiences, and these experiences need to be adapted to the needs of the next generations of pupils

(Steiner, 1996). Internationalisation could provide a promising context for advancing necessary skills and knowledge by enabling students to reflect on their own experiences with teaching, being taught, their social and cultural background, and their biases and prejudices about the world.

Moreover, it could support an additional sixth knowledge domain that is necessary to implement the acquired knowledge. This sixth domain, with which I want to complement Goodwin's ideas, is a meta--knowledge domain. It is an attitude, mindset or stance rather than a concrete kind of knowledge that can be acquired through traditional teaching methods. Nevertheless, it involves knowledge about how to implement change and how to adapt to new situations in a creative way. Thus, I call this knowledge domain "innovative knowledge". Its nature as a meta-domain derives from the idea that knowledge is not enough to implement change; a certain attitude and motivation are also needed, and it is exactly this combination of knowledge with a fitting attitude that is part of what I call innovative knowledge. Three mindsets are of importance in this knowledge domain: (1) open-mindedness, (2) flexibility, and (3) curiosity.

1. Open-mindedness is an important attitude as it allows (future) teachers to get intensively involved with their students' situations, beliefs, assumptions, behaviour, needs, desires, and so forth – or, in short, with their personality and context. Adopting an open-minded approach towards students, parents and colleagues can also offer plenty of learning opportunities for teachers as they might be confronted with new/alternative ways of thinking about the world due to different cultures, life histories and experiences. Thus, it provides a fertile ground for self-development and continuous professionalisation.
2. Flexibility is necessary on a general as well as on a situational level. On a general level, teachers need to be flexible to respond to changes in the education system as well as to their current environment. They need to prevent themselves from blindly following set routines, principles and policies. By being flexible in adopting policies and their own routines, teachers can take the students' personalities and contexts into account when planning educational situations. On a day-to-day basis, teachers also need the ability to react flexibly to all kinds of educational

and organisational situations in the classroom and school; thus, flexibility is needed on a situational level.

3. Finally, there is the aspect of curiosity to consider. Only by being curious about the world we live in are teachers able to detect small changes in themselves, their students, their schools, and the local, regional and global environments. This is the first step for reflecting on their possible influence on teaching and learning. By being curious, teachers can also adopt an open-minded approach towards developments in education in different systems, countries, and situations. This can then serve as an inspiration for how the detected changes can be responded to in the educational process.

It becomes clear that open-mindedness, flexibility and curiosity are not three separate concepts but complement and overlap each other. In combination, they can support (prospective) teachers in dealing with an unknown future for the benefit of their students and thus form an essential part of modern professionalisation.

Is Internationalisation the Answer?

In the previous section, I suggested that internationalising teacher education can support the process of professionalisation in a global context. Before moving on to elaborate further on the possible chances that internationalisation can have for teacher education, I want to clarify what internationalisation in teacher education can mean. In the literature, there is often no clear differentiation between the concepts of globalisation, internationalisation, multiculturalism, or cross-culturalism (Buczynski et al., 2010).

Jane Knight makes the interconnectedness of globalisation and internationalisation clear when stating that "[i]nternationalisation is changing the world of education and globalisation is changing the world of internationalisation" (2003, p. 3). Through this lens, globalisation can be viewed as a global development and internationalisation as a strategic response of different systems to globalisation. Education is then influenced by policy and practical decisions taken as part of internationalisation strategies in the educational arena. The direction of this influence is not one-sided; an interaction between all three exists. Changes in the education system can, for example, influence

internationalisation strategies and have an effect on processes of globalisation.

Multicultural and global education (sometimes called cross--cultural education) refer to educational ideas and aims. Both overlap, as Wilson (1993) suggests that multicultural education can support the development of a global perspective. Davenport (2000) distinguishes both by emphasising that multiculturalism is based on a local and intra-national context, whereas global education focuses on an international perspective.

In summary, globalisation is a global development without a clear target or stakeholder, whereas internationalisation is a strategic response to globalisation. In this context, multicultural and global education can be viewed as curriculum elements that respond to challenges and the chances brought by globalisation to education, even if these ideas developed separately from the globalisation of education research approach (Dolby & Rahman, 2008). As such, they are part of a wider internationalisation strategy. Internationalisation in teacher education can thus be seen as a strategic element for preparing (prospective) teachers for integrating a global dimension into a globalised classroom. Therefore, internationalisation forms an important part of developing professionality further.

How much internationalisation can add towards professionality in teacher education will be highlighted by using Goodwin's (2010) previously outlined knowledge domains as well as the "innovative knowledge" domain, as they are a valuable foundation for contemporary professionalisation in teacher education.

Goodwin's first knowledge domain, personal knowledge, is based on the assumption that all teachers bring their own beliefs, experiences and expectations deriving from their own schooling into teacher education programs and the profession. These personal ideas need to be reflected on in order to align them with theories and state-of--the-art knowledge on pedagogy, teaching and learning. Or, to use Goodwin's own words, "teacher preparation is a transition between what one has been in the past and will be in the future" (2010, p. 23). The internationalisation of teacher education can add towards this repositioning process by providing culturally diverse ideas, beliefs and expectations on education. By confronting students with different philosophies of education, pedagogical approaches and theories

on teaching and learning, a broader context arises in which personal experiences can be put into perspective. It becomes quite clear to the student that their own experiences are just some of many others, and this can challenge them to engage critically with their individual experiences during their schooling and studies in the light of diverse theories.

Contextual knowledge, the second knowledge domain, is a response to the problem that teacher educators cannot prepare future teachers for all possible situations. Goodwin suggests that by equipping prospective teachers with contextual knowledge, they are able to react to new and unforeseen changes and challenges in their classrooms and the surrounding communities. This type of knowledge becomes even more important in a globalised world as children move between different spheres and cultures, not least due to developments in communication technologies. Contextual knowledge is also important as an analytical tool for teachers as it "propels teachers beyond subject or instructional strategy to examine learners' needs as nested within multiple socio--cultural-economic-political locations" (Goodwin, 2010, p. 24). Goodwin also suggests that the internationalisation of teacher education can add towards gaining applied and in-depth contextual knowledge about the global and the local environment. Referring to Cushner (2007), Merryfield (1995) and Roberts (2007), she points out that "[t]echnology, international exchanges, and studying abroad all hold promise – and have evidenced success – as avenues towards greater intercultural knowledge and internationalisation" (Goodwin, 2010, p. 24). In an increasingly intercultural classroom, this kind of knowledge is an essential part of professionalisation.

The third knowledge domain, pedagogical knowledge, is the basis for high-quality teaching. Goodwin (2010) sees pedagogical knowledge as a key driver for transformation in education, including the education system, educational structures, teacher preparation, and assessment. In order to become an active partner in reform processes, teachers need to become pedagogical authorities. To do justice to all children, they need to be able to include not only the formal curriculum set by authorities but also the "informal, cultural, or personal curricula that children embody – the curriculum of home, the curriculum of community/ies, the curriculum of lived experiences" in their teaching as well as "to critically assess and adapt assigned materials or, possibly,

create new materials arising from students' unique contextual, academic, and personal needs" (ibidem, p. 25). International experiences can foster an understanding of different pedagogical traditions beyond one's own educational system, structure, values and traditions. As such, it can offer a variety of frameworks to rethink teachers' own educational systems, structures and practices and, thus, provides a fertile ground for transforming education and responding to the individual needs of children.

Sociological knowledge, the fourth knowledge domain, is concerned with a rather general transformation in societies worldwide that is due to diversification processes. Diversification is not new, but "globalisation has brought the world's diversity into high definition – diversity is no longer "out there" but right here" (ibidem, p. 26). For the teaching profession, this means that "none of us can ignore any longer the too many children who do not receive what they deserve, including a quality and caring education to help them develop into informed, thinking, moral, and empowered citizens" (ibidem, p. 26). Sociological knowledge is thus in line with the humanistic educational ideal. The role of teacher education is to challenge future teachers to overcome their own prejudices about children and the world. Or, to use Goodwin's words, "[t]eacher preparation will need to become uncomfortable, a space for interrupting low expectations, deficit thinking, racism, classism, xenophobia, and all other kinds of isms, if our intention is to develop teachers who can uphold the rights of children and are equipped to interrupt schooling practices that are discriminatory and harmful" (ibidem, p. 26). International experiences are a meaningful tool to challenge students in this respect as they can provide a context in which students are exposed to being "the other" or "the outsider". They can apprehend how it feels to be "the stranger", to not understand the language completely, and to be unable to express their own ideas and feelings clearly. By empathising with such situations, future teachers can better understand the challenges of some children in their classroom and thus react accordingly in a professional manner (Merryfield, 2010).

The fifth and last of Goodwin's knowledge domains is social knowledge. This domain refers to democratic and co-operative skills. Following up on the idea of teachers as drivers of change in education, these skills are important to enable teachers as professionals

to make joint decisions about pedagogy and the curriculum and to create classrooms in which students can learn these skills to act as global citizens in their later lives. Internationalisation can contribute to the development of these skills as a field of practice for students. Engaging with an international community requires them to co--operate with people from different socio-cultural-economic-political backgrounds and thus trains these skills in a highly complex but safe learning environment. In addition to the aspects outlined by Goodwin, social knowledge is of course important for work with all kinds of stakeholders in the educational process, such as parents, children, other professionals like psychologists or social workers, and colleagues and members of public institutions.

Innovative knowledge, the domain that I added to Goodwin's list and outlined in the previous section, can be enriched by the internationalisation of teacher education. As innovative knowledge is a mindset rather than concrete knowledge, future students already need a certain degree of open-mindedness, flexibility and curiosity to be motivated to participate in international experiences. Nevertheless, a stimulating international experience can foster those attitudes by providing a varied and inspiring atmosphere with challenging and new ideas, philosophies and practices of education. In other words, internationalisation has the potential to amplify those mindsets in teacher education by providing a view beyond the horizon. Innovation in the educational process can also be fueled by increasing the range of knowledge in the other five knowledge domains and thus can lead towards a bigger repertoire for future practices, thoughts and critical reflections.

Overall, internationalisation in teacher education can provide "food for thought" and support the acquisition of knowledge belonging to the six knowledge domains. In doing so, internationalisation can contribute to professionalisation in teacher education. An obvious question now is: How can internationalisation be integrated into teacher education programs?

What Internationalisation Can Mean and Look Like in Teacher Education

Despite the potential benefits of internationalisation in teacher education, there is still no common approach on how to integrate it into

teacher education programs. As the study by Buczynski et al. (2010) shows, it is rather difficult to find an agreement on what this should look like, even when a democratic approach to policymaking is adopted. In the following, I want to use two dimensions to describe existing implementation strategies of internationalising teacher education.

The first dimension is concerned with the content of the internationalisation strategy, whether practical or academic. This is important to distinguish as teacher education is not only an academic discipline but includes practical training in the classroom; thus, in their international experience, students might focus either on academic endeavors or internships at school.

The second dimension is concerned with the place of internationalisation, whether abroad or at home. With big numbers of participants in teacher education programmes and a lack of funding, it is impossible to send all students abroad; thus, an international experience cannot be limited to studying/working abroad but should also be included in teacher education programmes at home to make it available for all future teachers. The first one is focused on study or work abroad, and the latter includes, for example, curriculum development; the co-operation of two or more universities in online formats; internships at international schools at home; and visiting lecturers, students and/or experts from abroad. The borders of these dimensions are fluid as they are a continuum rather than strict categories, but they can help to analyze the benefits and drawbacks of internationalisation in a systematic way.

A high degree of practical experience in the form of internships without them necessarily having an academic underpinning can foster, for example, one's own experiences with diverse educational situations. Thus, it has a high potential to contribute strongly to the personal knowledge domain by engaging with other educational practices. This is a good starting point for questioning and reflecting on one's own experiences. Pedagogical knowledge might, on the other hand, not be as present as in well-planned academic programmes.

Study/work experiences abroad can provide a high-level learning experience in the area of innovative knowledge as students need to be flexible in adapting to a new situation and need to be open--minded to get in touch with the other cultural and social environment. Having diverse chances for direct observation might increase the level

of curiosity about the other country. Thus, it might also add towards contextual knowledge in a particular case. Sociological knowledge is also a key dimension that can be fostered in an experience abroad because students in this situation do become "the other" in their new environment. Having an international experience in the form of an active online course, on the other hand, can have the potential to foster social knowledge as co-operation in this environment includes the additional challenge of not meeting people face-to-face. Contextual knowledge about diverse countries and cultures can be effectively brought into teacher education programmes with internationalisation strategies at home.

Regardless of the kind of internationalisation strategy, it is of utmost importance to include a critically reflective approach (Hollins, 1996). Otherwise, international experiences might be at risk of reinforcing students' prejudices instead of expanding their repertoire and questioning their own past, present and future experiences.

As it would go beyond the scope of this paper, I will not examine each internationalisation strategy but instead concentrate on one particular internationalisation project – the International Project (IPC). This project can be located within the "Internationalization@home" strategies in terms of its implementation and focuses on academic content rather than on practical experiences.

IPC: An Example of "Internationalization@home"

The International Project (IPC)

IPC is an online course concept that focuses on providing an international experience at home for students. As such, it is an offer for students interested in engaging with an international community of fellow students and teacher educators that does not require any financial resources from the student's side. Due to the nature of an online course, students are free to decide when and where to participate. In other words, there are no conflicts between IPC, academics, family or other private obligations as long as the students are prepared to invest a couple of hours each week. How they distribute their time is fully up to the student's decisions. That means that from an organisational point of view, IPC is an easy and convenient way for students to engage in international activities and exchange ideas with international partners.

The original concept for the course was developed by Prof. Dr. Jean--Pol Martin at the Catholic University of Eichstätt-Ingolstadt and was adapted for teacher education by Prof. Dr. Klaudia Schultheis in 2008. Since then, the course has been regularly implemented by various partners from now four different continents. There are different formats of the course that vary with respect to the complexity of the content and the intensity of the international work[1]. In this paper, I will focus on IPC Basic as this course has been offered on a regular basis since 2008 and has the biggest number of participating universities. In 2018, the participating universities were: Catholic University of Eichstätt-Ingolstadt, Germany (coordinating university); University St. Kliment Ohridski, Bulgaria; Junshi University Nagasaki, Japan; "La Immaculada" Escuela Universitaria Diocesana de Magisterio, Universidad de Granada, Spain; Yamaguchi University, Japan; Karlstad University, Sweden; and Australian Catholic University, Australia.

The IPC concept is based on an online course offered on the PowerSchool Learning platform. The course is also complemented by face-to-face introductory and final presentation sessions in each participating university. Thus, students will meet their local supervisors and fellow students twice during the course. In the online phase, students from the participating universities work under the supervision of their international teacher educators on small projects using the online platform and other digital or social media that they deem necessary. For group work, the bigger group is divided into smaller international teams to ensure that an in-depth knowledge exchange is possible. The students' distribution into smaller groups takes place randomly with the aim to include at least one to two students from each country. Each small group is supervised by one teacher educator coming from the participating universities. Despite their allocation to certain groups, all supervisors are available to students in case they have a particular question, concern or interest in one of the countries. As such, students and teacher educators have the chance to co-operate in an international team and to develop intercultural competencies and knowledge about teaching and teacher education in other countries.

1 For more information on the different formats, see www.internationalproject-ipc.com/en/didactical-formats-and-variations-of-the-ipc.

Most topics that students can choose from are based on a literature review, but it is also possible for students to decide to conduct a small qualitative research study. During the course, students discuss and translate the readings provided in their local language with their fellow group mates. This has the benefit that students can share academic content that comes from different educational cultures and would otherwise not be accessible to them due to language issues.

In the IPC class, the following learning objectives are addressed: (1) global competences, including global awareness, cultural understanding, international experience, intercultural competence, working in multinational teams, and comparisons of education systems, policies, research and publications; (2) expertise, including on curriculum-relevant topics, comparison of perspectives, critical thinking, and developing one's own reflected-on standpoint; (3) project skills, including autonomous project planning and performances, training of communication and collaboration skills, and the presentation of results; (4) internet skills, including online communication tools and internet platforms for educational purposes, such as discussion forums, video conference, social media and so on; and (5) language skills, as English is the common language of instruction and communication (IPC, 2020). Comparing the learning objectives of IPC with the knowledge domains, it becomes clear that all of them are covered to a certain degree. The extent to which they are experienced and perceived by the students participating in IPC will be discussed in the following section.

Data Collection and Analysis

The data used to show how far IPC can contribute to the six knowledge domains derives from an anonymous online evaluation questionnaire, conducted with the IPC class of 2018. Of concern for this paper are the answers to the following open questions: (1) What did you like in the IPC class? and (2) What did you dislike in the IPC class? These questions were used as they reflect the individual thoughts of students without focusing on their learning outcomes. Thus, the answers capture what students deemed to be most important in this international experience and show where an increase in knowledge was most valuable to the students.

The questionnaire was available to all participants after the IPC class had ended. The response rate was 55.42%. Out of the 46 students who participated in the survey, 29 students answered question one, and 27 students answered question two.

The data was analysed using a thematic analysis, following Braun and Clark (2006). The aim of the data analysis was to depict the main benefits and challenges that students had within the IPC course. As already mentioned, these aspects can also be used to see the extent to which students incorporated the content and learning objectives in their feedback about the course. It can thus provide implicit hints on what kind of knowledge domains they deemed to be most important within their individual learning experience during the online course.

Benefits and Drawbacks of IPC for the Knowledge Domains

The things that students liked most in the IPC class were connected to (1) the format of the course, (2) the opportunity to work with people from other countries and to share ideas and knowledge with them, (3) the skills and knowledge acquired, and (4) communication and group work. Of importance for receiving an insight into how far the international experience increased knowledge in the six domains are themes two, three and four.

Theme two, the opportunity to work with people from other countries, includes aspects such as "learning about other countries" and "discussing problems of other countries" – this gives us a hint that gaining contextual knowledge was an important aspect for students. Students also claim that they learnt about "other points of view" and "shared a lot of different opinions and information". This could mean that they reflected on their own education and thus increased their personal knowledge. Discussing different opinions and information can be seen as a step towards acquiring in-depth and diverse pedagogical and sociological knowledge.

Theme three, acquired skills and knowledge, covers statements such as "it is a way to learn English and to catch up with other methods of education", "getting to know other people and other teaching methods" and "the fact that I learnt new things and met new people". It becomes obvious that students increased their repertoire about teaching methods; thus, IPC adds towards the pedagogical knowledge domain. Meeting new people from other countries and exchanging

ideas with them is a recurring theme within the collected data. Students see this as an added value, and it can be assumed that this might add towards several knowledge domains, especially the sixth domain of innovative knowledge. Being curious and open-minded about other countries and engaging with "strangers" from other backgrounds is an important aspect of it.

The fourth theme, communication and group work, is closely linked to social knowledge and language skills. The raised aspects were, for example, "teamwork, fluid communication and helpful peers", "the international communication", "the teamwork with other countries" and "seeing how other countries and students worked on group presentations and projects". Co-operation and seeing different problem-solving approaches might have added towards the contextual knowledge domain, too.

The students of this IPC class struggled most with (1) communication and group work, (2) content and course execution, (3) the medium of instruction and the online platform, (4) English language problems, and (5) time management. Although point two is mainly concerned with technical problems and point five with project management skills, the other three are of significance for this paper.

Communication and group work have already been pointed out as positive aspects in the IPC class, but as group work is highly dependent on the individual group, some of the students struggled quite a lot with it. In other words, social knowledge and support in this domain could be included more intensively in this course format.

Concerning the content and execution, one student complained that not enough content was covered in the course. Another student wrote: "we never really talked about our own countries and the differences of being a teacher in this or that country. The traits of good teachers have been in every country more or less the same". This quote shows that contextual knowledge is important from the perspective of students, but it also highlights that there are a lot of similarities within the participating countries that students were not aware of at the beginning of the course. Innovative knowledge can be interpreted in this theme as well, as students did not feel that they covered enough content to satisfy their curiosity about other countries and other education systems. Despite this, it shows that students were not curious enough to use the open space to start

communicating freely about these issues. This might be connected to a lack of social knowledge. Other students within this theme just did not like some of the tasks or were not satisfied with the course structure and set-up.

Problems with English as the language of communication hint at the idea that students learnt how it feels to be an "outsider" and unable to communicate in the desired way with the group. Even if it was an unpleasant experience for the students, it could add towards a learning process within the sociological knowledge domain.

Conclusion

Although the data presented in this paper has a range of limitations such as the small sample size, taking only one cohort of students into account, and a missing direct link between the considered questions and the six knowledge domains, it still shows that an academic internationalisation project at home has great potential to deepen knowledge in the six knowledge domains. This is even true for the cases where the experience is not entirely positive as, at some points, teacher education needs to become an uncomfortable space in order to challenge students on their views on the world and on education (Goodwin, 2010). The potential of the IPC for professionalisation in teacher education, including deeper understanding within the six knowledge domains, becomes quite clear when looking at some of the closing words of the students:

It was very constructive and interesting. We got knowledge, abilities to share information with people from different countries, and we learnt how education was in other countries. It was definitely a very good experience.

I found it interesting to learn something from students from different countries and about the different school systems.

It was exciting working with unknown people, I haven't done anything like IPC in my life.

In the broader context of professionalisation in teacher education, this means that internationalisation can be a valuable part of the teacher

education curriculum. It can add towards professionality, especially in today's increasingly diversified classrooms and given the uncertainty of the future. Nevertheless, more systematic research is needed to evaluate the concrete potential of international experiences in teacher education. Currently, most research studies show how different local projects have impacted students' professional development, but there is still a lack of a systematic overview in terms of considering the format of the internationalisation strategy.

References

- Alexander, R. (2009). Towards a comparative pedagogy. In: R. Cowan, A.M. Kazamias (eds.), *International Handbook of Comparative Education* (pp. 923–942). Dordrecht: Springer.
- Braun, V. and Clark, V. (2006), Using thematic analysis in psychology, *Qualitative Research in Psychology*, *3*, 77–101.
- Buczynski, S., Lattimer, H., Inoue, N. and Alexandrowicz, V. (2010). Developing a policy for an international experience requirement in a graduate teacher education program: a cautionary tale, *Teaching Education*, *21*(1), 33–46.
- Budak, Y, Çakmak, M. and Gündüz, M. (2015). An Overview of Integrating Globalisation and Internationalisation in Teacher Education Context. In: M. Kricke, L. Kürten (eds.), *Internationalisierung der LehrerInnenbidlung. Perspektiven aus Theorie und Praxis* (pp. 57–66). Münster–New York: Waxmann.
- Burnham, J.J. (2009). Contemporary Fears of Children and Adolescents: Coping and Resiliency in the 21st Century, *Journal of Counseling & Development*, *87*, 28–35.
- CCSSO (Council of Chief State School Officers) (2013). *InTASC Model Core Teaching Standards and Learning Progressions for Teachers 1.0: Resource for Ongoing Teacher Development*. Washington: CCSSO.
- Cushner, K. (2007). The role of experience in the making of internationally--minded teachers, *Teacher Education Quarterly*, *43*, 27–39.
- Dale, R. (1989). *The State and Education Policy*. Buckingham: Open University Press.
- Davenport, M. (2000). Culture and education: Polishing the lenses, *Studies in Art Education*, *41*, 361–375.
- Devlin-Foltz, B. (2010). Teachers for the global age: a call to action for funders, *Teaching Education*, *21*(1), 113–117.
- Dolby, N. and Rahman, A. (2008). Research in International Education, *Review of Educational Research*, *78*(3), 676–726.

→ Fitzmaurice, M. (2008). Voices from Within: Teaching in Higher Education as a Moral Practice, *Teaching in Higher Education*, *13*(3), 341–352.
→ Goodwin, A.L. (2010). Globalisation and the preparation of quality teachers: rethinking knowledge domains for teaching, *Teaching Education*, *21*(1), 19–32.
→ Hanlon, G. (1998). Professionalism as Enterprise: service class politics and the redefinition of professionalism, *Sociology*, *32*(1), 43–63.
→ Hollins, E. (1996). *Culture in school learning: Revealing the deep meaning*. Mahwah: Lawrence Erlbaum Associates.
→ Hoyle, E. (1974). Professionality, Professionalism and Control in Teaching, *London Education Review*, *3*(2), 13–19.
→ ILO (International Labour Office), UNESCO (United Nations Educational, Scientific and Cultural Organisation) (2008 [1966]). *The ILO/UNESCO Recommendation Concerning the Status of Teachers*. Geneva: ILO/UNESCO.
→ IPC (International Project) (2020). *Learning Objectives and Competences*, www.internationalproject-ipc.com/en/learning-objectives-and-competences
→ Kissock, C. and Richardson, P. (2010). Calling for action within the teaching profession: it is time to internationalize teacher education, *Teaching Education*, *21*(1), 89–101.
→ Knight, J. (2003). Updating the definition of internationalisation, *International Higher Education*, *33*, 2–3.
→ Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools, *Computers in Human Behavior*, *23*, 1777–1791.
→ Mahon, J. (2010). *Fact or fiction? Analyzing institutional barriers and individual responsibility to advance the internationalisation of teacher education*, Teaching Education, *21*(1), 7–18.
→ Merryfield, K.M. (1995). Institutionalizing cross-cultural experiences and international expertise in teacher education: The development and potential of a global education PDS network, *Journal of Teacher Education*, *46*, 1–9.
→ Merryfield, K.M. (2000). Why aren't teachers being prepared to teach for diversity, equity and global interconnectedness? A study of lived experiences in the making of multicultural and global educators, *Teaching and Teacher Education*, *16*, 429–443.
→ Millerson, G. (1964). *The qualifying association*. London: Routledge & Kegan Paul.
→ Ochoa, A.M. (2010). International education in higher education: a developing process of engagement in teacher preparation programs, *Teaching Education*, *21*(1), 103–112.

→ Pachler, N. and Redondo, A. (2015). Internationalisation in (teacher) education. In: M. Kricke, L. Kürten (eds.), *Internationalisierung der LehrerInnenbidlung. Perspektiven aus Theorie und Praxis* (pp. 19–31). Münster–New York: Waxmann.
→ Pädagogische Hochschule Schwyz (2017). *Professionsstandards. Steuerungselement in der Ausbildung*. Goldau: Pädagogische Hochschule Schwyz.
→ Roberts, A. (2007). Global dimensions of schooling: Implications for internationalizing teacher education, *Teacher Education Quarterly*, *34*, 9–26.
→ Steiner, M. (1996). *"I prefer to see myself as a global citizen": How students can learn to teach for justice.* In: M. Steiner, *Developing the global teacher* (pp. 19–28). Stoke on Trent: Trentham Books.
→ Whitty, G. (2006). Teacher professionalism in new times, *Journal of In-Service Education*, *26*(2), 281–295.
→ Wilson, A. (1993). Conversation partners: Helping students gain a global perspective through cross-cultural experiences, *Theory into Practice*, *32*, 21–26.

How do Teachers Benefit from Mobility Experience?
Implications for Initial Teacher Education

DOI: 10.47050/66515314.42–52

Michał Pachocki

This paper discusses the outcomes of research carried out between 2016–2018 at Polish schools that send their teachers overseas for training. The overall objective of the research was to determine whether this kind of international experience might contribute only to one's own career development or to a wider impact on the entire teaching staff of those schools. The research was conducted with the use of mixed methods and covered a wide spectrum of competences, including language and ICT proficiency, knowledge of new teaching methods as well as communication, teamwork and leadership skills. The study revealed that individual experience gained abroad may also contribute to the professional development of other teachers in the sending school. Such an impact, however, requires a variety of other factors, including the support of management and the positive attitude of the entire school community. The research outcomes suggest that similar measures might also be worth undertaking to support teacher candidates in their initial professional preparation.

Keywords:
institutional development of schools
international mobility
teaching skills
teachers' competences
quality of teaching

Introduction

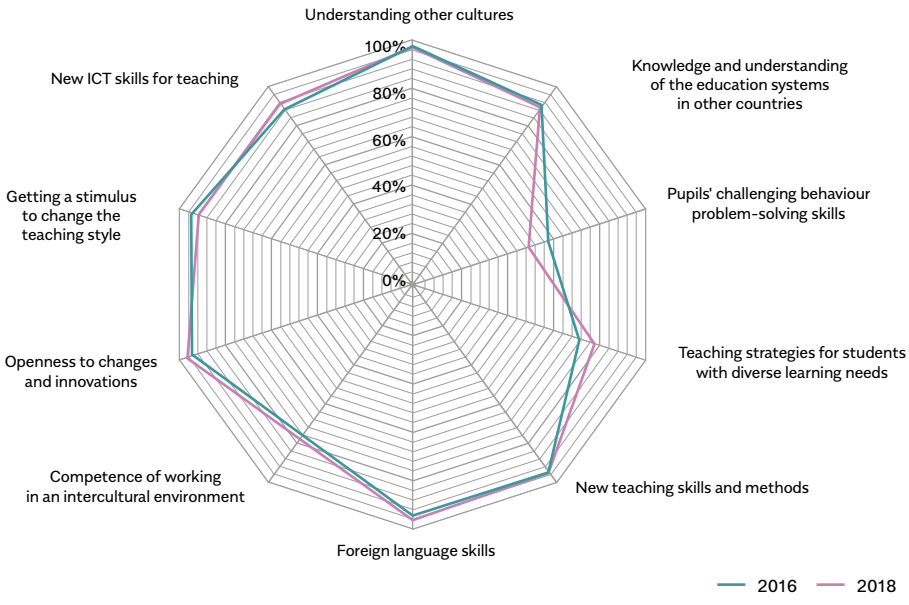
When focusing on what international experience brings to European schools, it is worth investigating its impact on teachers. In recent years, the teaching staff of many European education institutions has actively taken advantage of training abroad, aiming to acquire new knowledge and professional skills. In 2014, the European Union acknowledged the importance of international experience in educators' acquisition of new professional knowledge and practical skills by launching the Erasmus+ programme (EC, 2013), which offered international training opportunities to teachers across Europe. Since this kind of training has gained more popularity, it is of paramount importance to assess its long-term impact not only on the educational and career paths of individual teachers but also on the overall development of sending schools. Facing social changes and economic transformation, Poland can serve as an illustrative case study to investigate the longitudinal impact of mobility on increasing schools' international dimension. With little opportunity to send their education staff abroad based on their own capacities, Polish schools are eager to take advantage of the EU's financial support for staff mobilities (Kolanowska, 2018).

In this paper, I discuss the outcomes of research activities carried out in Polish schools that send their teachers overseas for training. This study was focused on the longitudinal impact of mobility, and data was collected with the use of mixed methods after the mobility's completion. The study was conducted in two stages. The first stage was an online survey with teachers and interview with school community members. Then the individual and group interviews were implemented with randomly selected teachers and school heads. In 2018, the same schools took part in the second stage. This was an occasion to verify the extent to which the previously achieved results turned out to be sustainable. The same methods were employed, aiming to harvest feedback from the same individuals. The research aims were focused on various competences, including language skills and computer literacy, knowledge of new teaching methods as well as communication, teamwork, leadership and soft skills. In addition, this paper aims at determining whether this form of training contributes only to one's own career development or to a wider impact on the entire teaching teams of the sending schools.

Impact on Teaching Skills

The most commonly reported benefit of mobility experiences was the enhancement of teachers' language skills (over 90% of positive claims among the survey respondents). It was often raised that the significant improvement of teachers' foreign language skills (which was, primarily, English) also contributed to the overcoming of language barriers, gaining self-confidence in dealing with foreign partners, and encouraging other teachers and students to focus more on the language learning. The qualitative methods brought more data on changes in the perception of language learning that turned out to facilitate the teaching processes. The teachers claimed that having a strong command of the English language gives access to new teaching methods and new teaching materials. According to teachers, the significant changes in curricula and new education methods mostly concerned the introduction of elements of the CLIL method in teaching non-language subjects. Such a change also results from an understanding of the functionality of language (and its primacy over hyper-correctness in communication with foreigners).

Figure 1. Mobility impact on individual skills (summary of both survey stages), $N_{2016} = 350$, $N_{2018} = 156$



Secondly, many examples of newly acquired teaching methods and tools also stemmed from ICT skills. The teachers often recognised the idea of applying ICT as crucial, especially during the implementation of curricula for higher grades in primary and lower secondary schools. The necessity to acquire new knowledge related to operating and using modern equipment and software also stemmed from general changes in the perception and use of modern technologies by new pupils coming to school. Thanks to the project, many participants eventually learnt how to use those tools. Furthermore, new skills allowed teachers to improve their performance of tasks other than teaching (e.g. keeping records, assessment and collection of teaching materials).

Table 1. Teachers' perceptions of the role of individual impact on their further work (summary of semantic unit analysis from both initial and follow-up study phases)

	INITIAL PHASE (2016)	FOLLOW-UP PHASE (2018)
IMPROVED COMMAND OF FOREIGN LANGUAGES	"It turned out that our language teachers, after completing school here in Poland, have never been abroad".	"As it was said: 'One can do better without a passport than without knowledge of the foreign language'... So, our teachers motivate each other, and some of them decided to attend language courses".
	"Our teachers pay more attention to the grammar and not to communication. Those pupils have no such complex. They speak ungrammatically but they use foreign languages, and that is due to the fact that they have opportunities to hold such conversations".	"In my school, some teachers decided to continue the learning of English as well. And some of them have already passed their language exams to confirm their new skills".
	"That is a great experience for a teacher who is not an English language specialist. This is very helpful in relation to your skills, but also in overcoming your fear".	"We had two teachers from Portugal visiting our school as they were willing to work with us, in terms of the exchange of students and good practices. We picked some classes at random to show them what the classes look like in our school and we suddenly entered the chemistry lesson. The teacher started to chat with them although she was neither prepared nor even warned about their visit. If such a thing happened a few years ago, it would have caused only shock and awe from her side".

THE USE OF ICT SKILLS	"My knowledge was low and now it has improved. I was afraid to touch something I was supposed to, ruining the thing as a result, and the equipment was expensive... Thanks to the project I am no longer afraid of looking for and applying new solutions".	"We create virtual classes and download learning apps. We use simple things that are obvious to us today. [...] The innovations of that time have become quite usual".
	"My colleague is not a big fan of computers and modern technologies. After the course she allows her pupils to use these devices during classes. From the viewpoint of her pupils, this is a total change".	"It is 2018 now, I just realised that when I thought about what has changed over the past four years in our school. We have four interactive boards in eight classrooms, which is an outstanding result in a village school. In each class, there is a notebook [...]. I did not know that our goals from 2014 would be fulfilled in the next four years".
CHANGES IN MENTALITY	"This is really about a change in mentality ... paying no attention to grades as it is not the grades that shape people in the future".	"Perhaps such a model of a modern teacher will come when the generation that is afraid of a foreign language and international contacts will leave. This old generation is very introverted, brought up behind the iron curtain".
	"We are learning how to be tolerant and curious. Because we learn one thing and then we want to learn another one. We are bitten by the curiosity bug; in other words, with outgoing mobilities we broaden our horizons".	"This older staff would prefer to have an English-speaking teacher to support them. But the younger generation enters this field very bravely, with no language barrier. They are already experienced in using the English-language Internet and they are not limited by any technological barrier. [...] I dream of the day when we will finally overcome such resistance..."
	"In Poland we focus on grades. It came as a big shock to us in England when the teacher tested knowledge of times tables. Nobody was cheating. The teacher was reading out the calculations and the correct answers. The kids marked a plus or a minus on their sheets".	"Now, when our staff had professionally grown abroad, they started to share their stories during classes. So, pupils do not perceive them as those 'beaks with chalks' closed in the school walls, but as people with their own ambitions and broad horizons".

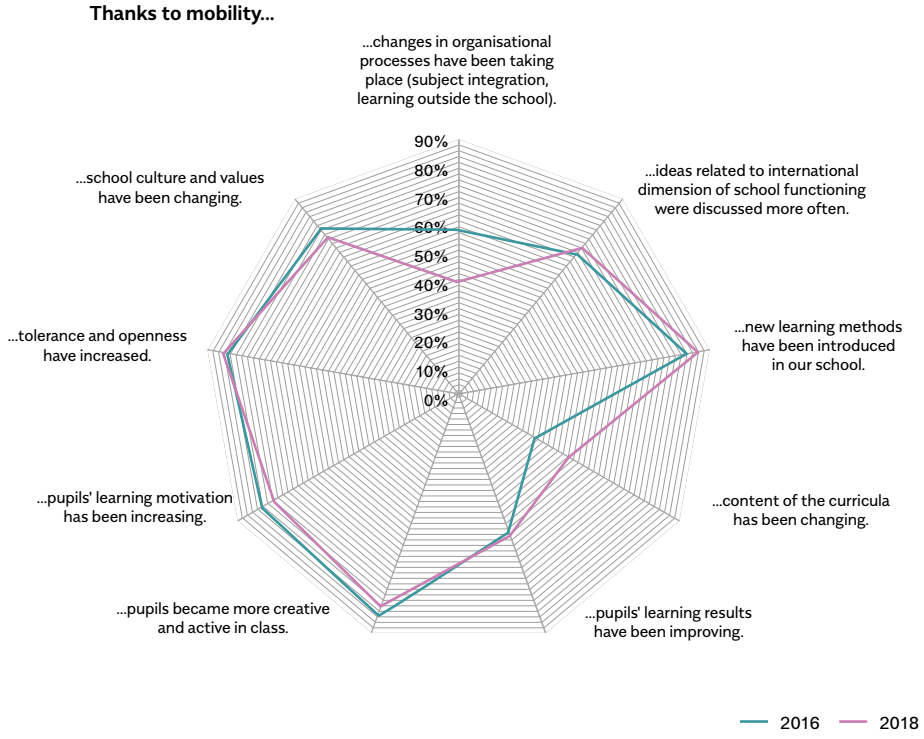
Lastly, the study also revealed that teachers' international learning experiences contributed to changes in individual professional attitudes, particularly where international experience gained led to greater openness in the school to learn more about other cultures and their contexts of education. During the first research phase, it was often declared that the opportunity to experience entirely different approaches to teaching, in different cultural and systemic contexts

of education, allowed mobile teachers to change their own perceptions of the Polish schools. Many participants claimed that their mobility had a major impact on the overall change in their professional attitudes and habits related to the current performance of daily teaching duties. Often, it turned out that those behavioural changes concerned also described their own approaches to the duties they performed, and one of the significant benefits realised by the mobilities was an increased motivation to continue to work with students. What is more, the emergence of leaders among teachers often determines the sustainability of institutional outcomes of mobilities. This means that the acquisition of soft skills by the teachers is necessary for the schools' growth. Such attitudes must appear through the initiative of the teachers themselves, while the school directors' role should be to inspire them to act. Finally, the modernisation of the school requires teachers' mutual trust, and it is claimed that this is impossible without them taking a step outside of their comfort zone.

Impact on Teaching Staff

Numerous examples of changes that occurred after the mobilities' completion were raised by the research participants. Many of them concerned the efforts to increase internal co-operation between teachers. For the schools, the opportunity to consolidate their teams also became an important benefit of mobilities. Since the Polish schools do not have much capacity to organise team-building events, it often turned out that the stay abroad was the very first occasion for school colleagues to get to know each other better.

Figure 2. Mobilities' institutional impact (summary of both survey stages), N_{2016} = 350, N_{2018} = 156



The teachers also claimed that one of the most significant benefits stemming from their mobility is the school's internationalisation. Thanks to foreign experience, the school can develop, acquire new contacts and, therefore, it can establish brand new partnerships with other educational institutions across Europe. It also increases international awareness among other school employees, learners, their parents and organisations co-operating with the school. Some members of the teaching staff also confirmed that they feel that they are now working in a more international institution. They admitted that they also now have a greater awareness of what is happening outside Poland in terms of modernising education. Therefore, the undertaken mobility was, most of all, considered as a tool to draw from European best practices, from new systemic solutions, as well as from the newest educational trends.

Table 2. Teachers' perceptions of mobilities' institutional impact in their schools (summary of semantic unit analysis from both initial and follow-up study phases)

	INITIAL PHASE (2016)	FOLLOW-UP PHASE (2018)
TEAM--BUILDING AND INTEGRATION OF TEACHING STAFF	"I was selected for this mobility during an additional recruitment process. And now I see that those who were there with me are the same people with whom I organize open days and new projects and on whom I am sure I can rely".	"First, you have to integrate this group of teachers before going abroad [...] and then it is great during your mobility when, for a week, the staff are together in different situations, not only during classes and training. Teachers are often unable to talk to each other in everyday working conditions".
	"Those who did not take part in these projects are usually curious; they ask questions and have the urge and energy to get involved in new project activities".	"I also wanted to pay attention to the consolidation of the team that participates in the project. Such integration has a lot of good values and can be a starting point for any further activities. During everyday work at schools, there is no way to co--operate with the same group of people for the whole week, only to draw valuable conclusions".
INCREASING THE INTER-NATIONAL DIMENSION OF TEACHING AND LEARNING	"I think that the entirety of Europe is currently following such trends in education. Those trends are about a subjective approach to learners and to their autonomy".	"We are Europeans. We are open to innovation, we are aware of needs, of changes, of the higher competences and higher self-esteem – all this is happening thanks to the trips".
	"An English-language theatre has been set up in our school. This is not only about the fact that it is in English. It also encourages pupils to take part in international activities".	"We are in touch with the organisation with which we implemented the project. Thanks to the mobility experience, we established closer contacts with the hosts".

What is more, the schools' internationalisation not only often became a factor that positively distinguished schools in the local educational market but was often considered a strong value-enhancing factor for the teachers themselves. In other words, being a staff member of a "school that acts internationally" raised teachers' self--esteem, regardless of whether they took part in a mobility themselves. It is noteworthy that, in many cases, the very first mobility experiences among the staff subsequently served as the patterns for follow-up activities. Furthermore, the participants claimed that, as a result of their

foreign experience, they learnt how to enhance further international co-operation between the schools.

Discussion

The core objective of this research was to discover whether (and if so, in what ways) individual mobilities abroad might contribute to the overall development of the sending schools and to what extent the mobility outcomes became sustainable. I used mixed methods: web surveys, interviews and observations. The results of the study lead me to believe that an international mobility might be an attractive form of in-service teacher training. Beyond the improvement of communication skills in a foreign language, the research participants mentioned new ICT skills as a significant benefit of this kind of training. The study also revealed that the international experience of teachers often has a significant institutional impact on the Polish schools. The teachers confirmed that they applied new teaching methods in their work and shared their newly acquired knowledge and experience with other teachers and staff in the sending institutions. They mostly confirmed that such a knowledge-sharing process often goes beyond the sending school as it was often claimed that teachers share their experience with other institutions. There are, however, some quite critical aspects that should be discussed as limitations of this research. Firstly, the findings do not represent the majority of Polish schools, but only those that are keen on gaining international experience. Secondly, these findings might also be affected by self-reported data bias (i.e. selective memory and participants' overestimations of their mobility's impact on a given school). Finally, to verify whether this positive attitude will contribute to real changes among the school staff, the time aspect needs to be taken into consideration. This stems from the importance of the longitudinal approach towards project impact, as time is a key factor for the sustainability of any kind of international training outcome.

What can also be drawn from this study is the potential for expanding its results beyond the field of in-service teacher training. The research outcomes suggest that foreign professional experience might also contribute to the preparation of young teachers for their future profession. The feedback harvested from mobility participants stands for the fact that this kind of experience is considered an effective form of raising professional capacities not only for those

staff members who have reached the top of their career ladder, but also for those with very little professional experience or no working experience at all. When asked about their motivation to go overseas for training, most of the teachers pointed to the lack of a comparable offer within the national professional development framework. Despite a relatively large number of courses being offered by domestic training institutions, drawing experience from abroad still remains more valuable and attractive for them. It can be considered that this is mostly due to the specifics of the competences and skills that are gained transnationally. In particular, the headmasters of schools claimed that international mobility experiences help to boost the competences that teachers are less likely to gain during similar training activities carried out at national teacher training centres. This particularly applies not only to the ability to use new technologies and foreign language skills but also to soft skills and social competences. In their opinion, there is a huge difficulty with finding suitable job candidates with these skills in the current labour market. Such a deficit of qualities particularly concerns young people who are just about to enter their career paths.

What is more, many participants (regardless of their age and work experience) claimed that participation in their schools' international projects was their first opportunity to stay abroad for a longer period of time. Moreover, for some of them, the destination country of their mobility was, in fact, the first foreign country they had ever visited in their lifetime. This even applied to graduates of philological faculties who worked as foreign language teachers. The study outcomes may lead to the conclusion that – despite the increasing internationalisation of higher education – many young teachers who start their work at schools do not have any experience of gaining practical skills abroad. Their foreign experiences remain limited to scholarships or student exchanges rather than to having any kind of practical training in another country. It seems, therefore, legitimate to postulate the introduction of a professional training period for students of pedagogical faculties in parallel to their study programmes or to other transnational learning periods. Acquiring such experiences at this stage of their education would allow them to be better prepared for their future profession by broadening their horizons, increasing their openness to changes and, finally, by better understanding international contexts of teaching and education in general.

References

- → Balčiūnas, S., Damkuvienė, M. and Valuckienė, J. (2017). *Impact and Sustainability of the Erasmus+ Programme Key Action 1 Mobility Projects for School Education Staff. Research Report*. Šiauliai: Šiauliai University.
- → Kolanowska, E. (2018). *The System of Education in Poland 2018*. Warsaw: Foundation for the Development of the Education System.
- → Pachocki, M. (2016). *Mobilni nauczyciele zmieniają swoje szkoły*. Warsaw: Foundation for the Development of the Education System.
- → Pachocki, M. (2019). *Jak mobilni nauczyciele zmienili swoje szkoły? Raport z badania długofalowych efektów zagranicznych mobilności szkolnej kadry edukacyjnej*. Warsaw: Foundation for the Development of the Education System.
- → Regulation (EU) No. 1288/2013 of the European Parliament and of the Council of 11 December 2013 establishing "Erasmus+": the Union programme for education, training, youth and sport and repealing Decisions No. 1719/2006/EC, No. 1720/2006/EC and No. 1298/2008/EC.

Assessment in Initial Teacher Education
Views of Portuguese and Polish Students

DOI: 10.47050/66515314.54–85

Cláudia Pinheiro, Maria Assunção Flores, Joanna Madalińska-Michalak

Drawing upon a wider piece of research, this chapter[1] focuses on assessment in teacher education programmes. It reports on data collected in five Portuguese public universities and four Polish public universities. In total, 789 student teachers participated in the study. It aims at investigating student teachers' ideas associated with assessment and the most used methods of assessment considering their experience in teacher education. The participants reported more ideas associated with a summative purpose of assessment than ideas related to a formative purpose in both countries. As for the assessment methods, the data suggest that Portuguese students are assessed using a greater variety of methods, while Polish students highlight mainly the use of methods such as written tests/exams, group projects and group oral presentations.

Keywords:
assessment
higher education
student teachers
methods of assessment
teacher education

1 The project reported in this chapter was funded by the Portuguese Foundation for Science and Technology – FCT, Government Funding Agency (SFRH/BD/122094/2016).

Introduction

Students' motives, expectations and preparedness for higher education not only affect how they approach learning tasks, but they also impact on how students adjust to the wider higher education environment (Byrne & Flood, 2005). Understanding the nature and purpose of teaching and learning entails the consideration of the social, political, cultural and economic contexts in which they are embedded (Flores, 2016a). A look at existing international literature on teaching and learning reveals some common trends; for example, a growing emphasis on issues of accountability and an outcome-led orientation, but also diverse modes of government intervention, different strategies and learning environments, and various understandings of assessment and improving teaching and learning quality (Flores, 2016a; Flores, 2011; Darling-Hammond, Newton & Wei, 2010).

A diverse and heterogeneous population of students requires changes in teaching practice, with less focus on teacher-centred approaches and more on the learning outcomes that students have to achieve (Sally, 2005; Miller et al., 1998; Rust, 2002) in line with a more student-centred perspective (Flores, 2019b; Myers & Myers, 2015; Webber, 2012; Kahl & Venette, 2010; Black & Wiliam, 1998). Different reasons (motivating students, encouraging activity, providing guidance and feedback, rating and selection) will have an impact on the choice of assessment instruments, which may include a wide variety of methods suitable for different contexts and purposes (Sally, 2005). In this chapter, Portuguese and Polish student teachers' views of assessment are presented.

The present chapter aims (1) to get to know the ideas associated with assessment and methods of assessment used in teacher education; (2) to identify the ideas that Portuguese and Polish student teachers associate with assessment, taking their experience into account; and (3) to identify the methods used in Portuguese and Polish teacher education, taking student teachers' experience into account.

The study is part of a larger research project entitled *The use of alternative methods of assessment in higher education: A study of university teacher and students* funded by the Foundation for Science and Technology (SFRH/BD/122094/2016) and it was approved by the Ethics Committee on Research on Social and Human Sciences of the University of Minho (SECSH 037/2016).

Assessment in Higher Education

Assessment is at the core of teaching and learning in higher education. It is highly influential in shaping the learning experience of students (Thomas et al., 2019; Ramsden, 2003). The central role that assessment plays in learning and teaching is increasingly being recognised in higher education (Hughes, 2011) because the ways in which students are assessed can really make a difference in the way they learn (Sally, 2005). Assessments are used to investigate what people **know** and **can do** and to make decisions regarding whether they have learnt what was expected (Baird, 2017).

It is assumed that assessment in higher education faces a number of challenges (Carless, 2007). One of the core problems is that assessment is about several things at once (Ramsden, 2003), or what Boud (2000) refers to as "double duty". It is about grading and learning; it is about evaluating student achievements and teaching them better; it is about standards and invokes comparisons between individuals; it communicates explicit and hidden messages (Carless, 2007). Assessment, thus, engenders tensions and compromises (Carless, 2007). Many current assessment practices do not promote independent, reflective, critical learners and this focus is incompatible with current academic aims (Freeman, 1995; Boud, 1990). In other words, the external pressures on higher education may cause assessment to assume a primarily summative function. Because it is viewed by policy makers as an agent of educational reform (Linn, 2000), comparisons and generalisations on the basis of derived data are a logical consequence (Maclellan, 2004).

Students should have the ability to self-regulate their own learning, internally motivate themselves when no external forces are present, and be able to tap into deep learning approaches and strategies (Byrne et al., 2010; Malan, 2014). Educators need to create environments where students can develop lifelong learning skills. This requires the use of different forms of learning tools through intentional interventions (Malan & Stegmann, 2018; Hassan, Fox & Hannah, 2014; Vickerman, 2009).

The distinction between formative and summative assessment is not easy to make (Hernández, 2012; Knight & Yorke, 2003; Brown et al., 1997). The key difference between these two types of assessment is not when they are used but their purpose and the effect that

these practices have on students' learning. Some assessments in higher education are designed to be both formative and summative (Hernández, 2012; Yorke, 2007; Taras, 2005; Knight & Yorke, 2003). Such assessment tasks are considered formative because they provide feedback so that the students can learn from them. Furthermore, the same assessment task fulfils a summative function because a grade is awarded and contributes to the overall results of the course (Knight & Yorke, 2003; Heywood, 2000). The different purposes of assessment overlap or, at times, are in conflict with each other (Hernández, 2012; Bloxham & Boyd, 2007; Brown et al., 1997).

Much has been written about the purposes served by assessment in higher education (Liu & Carless, 2006; Boud & Falchikov, 2005; Boud, 2000; Peterson & Irving, 2008). Firstly, a common goal of assessment is to provide students with a certification of achievement (Broadfoot & Black, 2004). This view of the assessment of learning has long been associated with more summative means of assessment practice (Boud & Falchikov, 2006). Another purpose of assessment in higher education is to facilitate and to guide student learning. From this perspective, assessments allow lecturers to assess and improve teaching as well as help students manage personal learning processes (Thomas, 2019; Villarroel et al., 2018; Wiliam, 2007). In this formative perspective of the assessment, the literature presents three principles that are believed to support student learning through assessment. Firstly, assessment tasks are learning-oriented (Wicking, 2020; Turner & Purpura, 2016; Jones & Saville, 2016; Carless, 2011). There is also a variety of tasks that are used in order to assess achievement with a multiplicity of methods. Secondly, students are encouraged to engage with feedback (Wicking, 2020; Crisp, 2012; Nicol & Macfarlane-Dick, 2006), which is rich in detail and comes from both formal and informal sources. Thirdly, students' expertise in assessing their own (and others') performance is developed through such means as peer-assessment (Patchan, Schunn & Clark, 2018; Li & Gao, 2016; Li, Liu & Steckelberg, 2010; Li, Liu & Zhou, 2012; Falchikov, 2007) and self-assessment (Li, 2018; Hill, 2016; Brown, Dewey & Cox, 2014; Ryan & Ryan, 2013; Bourner, 2003; Zimmerman, 2002; Dochy, Segers & Sluijsmans, 1999). However, it is possible that the implementation of formative assessment practices would be problematic with students raised in a culture where such practices are uncommon (Wicking, 2020).

Student-centred assessment has been widely discussed in recent years, being considered a practice that is increasingly valued in higher education (Webber, 2012) and associated with the evaluation component of effective pedagogy (Myers & Myers, 2015). This perspective is based on fundamental aspects such as constructive and timely feedback, the student's active and autonomous role (Webber, 2012; Sluijsmans, Dochy & Moerkerke, 1999; Sambell & McDowell, 1998), the use of higher-order thinking (Light & Cox, 2003; Falchikov, 2005), problem-solving and competencies development in real contexts (Dochy, Segers, & Sluijsmans, 1999). At the same time, student-centred assessment promotes collaborative learning between students and teachers, allowing them to understand how their learning is taking place (Webber, 2012), enabling more effective learning (Struyven et al., 2005; Tang et al., 1999; Birenbaum & Feldman, 1998; Sambell & McDowell, 1998) and allowing self-regulation with effects on students' performance and their approach to learning (Pereira & Flores, 2019; Pereira, Flores, Veiga Simão & Barros, 2016; Boud & Falchikov, 2007; Huba & Freed, 2000).

Assessment methods and approaches need to be focused on evidence of achievement rather than the ability to convey information. To be valid, the assessment needs to focus on what is intended to be learnt as well. If we want our students to demonstrate employability when they graduate, our assessments need to be designed to be practice--oriented (Sally, 2005). The methods used need to be authentic, that is, assessing what they claim to assess, not just what is easy to assess (ibidem). Any assessment strategy needs to be efficient (Brown et al., 1994). Assessment tasks need to be an integral part of the learning process, as well as feedback. The moment in which assessment occurs is a key issue, since the answers given to the assessed work need to allow opportunities for correction, improvement and future learning (Sally, 2005). Current literature on assessment argues that the process should be a transparent one, with criteria that are explicit and clear to all concerned (assessors and assessed) from the outset (Sally, 2005; Thorpe, 2000; Brown & Glasner, 1999; Gibbs & Rowntree, 1999).

Although traditional methods are effective in some contexts and for given purposes, they may not be suitable for all purposes of assessment and may encourage only the reproduction and memorisation of knowledge (Pereira & Flores, 2019; Perrenoud, 1999; Biggs, 2003).

Thus, the use of given assessment methods, their adequacy to teaching and learning's goals and the nature of the courses are of paramount importance. According to the literature, non-traditional methods of assessment have emerged especially to overcome less successful aspects in traditional assessment methods.

It is important to understand how assessment practices are viewed in a constructive way, and not just as judgments. Summative feedback, which enables judgments to be made for progression and completion, needs quite clearly and overtly to report to the assessment criteria and to be strongly aligned to the curriculum objectives (Sally, 2005). On the other hand, formative feedback is crucial. It needs to be detailed, comprehensive, meaningful to the individual, fair, challenging and supportive, which is a tough task for busy academics (ibidem).

Learning from feedback is something that can cause anxiety in students and teachers. Teachers spend a significant amount of time developing feedback for students, and it can be frustrating when it appears that they are not reading or acting on those comments. Students who receive feedback do not necessarily have the emotional and strategic competencies to process and implement feedback to develop their learning. For feedback to be effective (Ramon-Casas, 2019; Hughes, 2011; Nicol & Macfarlane-Dick, 2006), it is necessary to use some simple strategies that increase its impact without increasing the amount of feedback that is given (Allal, 2019; Panadero, Jonsson & Botella, 2017; Panadero, Jonsson & Strijbos, 2016). Some of the potential benefits in learning and development reported in the international literature include increased autonomy, motivation (Brown, 2004; Pope, 2001), student responsibility (Somervell, 1993), critical thinking and interpersonal skills aimed at deepening the understanding of the evaluation criteria and achieving quality performance (Dochy, Segers, & Sluijsmans 1999; Patri, 2002). Thus, by providing adequate and timely feedback to students (Gibbs, 1999), it is possible to improve learning outcomes (Li & Gao, 2016; Li & Steckelberg 2005; Pope, 2001). This is even more relevant in teacher education programmes in so far as student teachers will also need to learn from assessment as they will be teachers in the future.

Initial teacher education: Key topics in international literature

Globalisation and internationalisation are two prominent features that influence teacher education (Gray, 2010). Initial Teacher Education (ITE) has been discussed from a wide range of perspectives, focusing on its structure and curriculum, field experiences and coursework and the interplay between them, as well as the learning experiences of student teachers (Flores, 2017; Flores, 2016b; Townsend, 2011; Darling-Hammond, Newton & Wei, 2010).

A look at the international literature reveals a number of restructuring processes in ITE taking place in different countries such Russia (Valeeva & Gafurov, 2017), Hong Kong (Goodwin, 2012), the Netherlands (Hammerness, Tartwijk & Snoek, 2012), Australia (Mayer, Pecheone & Merino, 2012), the USA (Darling-Hammond, 2012; Imig, Wiseman & Imig, 2011) and Portugal (Flores, 2011). An analysis of this literature suggests that teaching practice in ITE varies not only in terms of location in the different programmes and their length but also in regard to its philosophy, aims and assessment methods (Flores et al., 2016). Thus, it is possible to identify different "practices" in ITE curricula internationally and diverse ways of articulating them with other components of the programmes (Flores, 2017).

In recent years, the issue of teaching quality and teacher education has attracted the attention of many researchers all over the world (Valeeva & Gafurov, 2017; Friese, 2016; Maschke & Stecher, 2016; Woolhouse & Cochrane, 2015; Brante et al., 2015; Donitsa-Schmidt & Weinberger, 2014; Childs & Menter, 2013; Flores, 2011). Linking theory and practice in ITE is of great importance internationally (Valeeva & Gafurov, 2017; Flores, 2016b; Van Nuland, 2011; Korthagen, Loughran & Russell, 2006). It is one of the major issues in ITE, but at the same time it is noted in international research that a disconnection exists between theory and practice (Flores, 2016b). Although practicum is recognised as a core element in ITE curricula, there is no consensus about its goals, strategies and required competences (Flores, 2016b). Meanwhile, it is necessary to support classroom practice and research in the curriculum (Valeeva & Gafurov, 2017).

Several aspects related to ITE are discussed internationally. For example, Tang (2002) points out that student teachers are active agents making evaluative judgments on the more theoretical forms of knowledge learnt

in higher education. Evans (2010) identified teacher education graduates' strong focus on the classroom and their belief that only experience can truly prepare them for teaching. Wæge and Haugaløkken's (2013) study shows the importance of the direct relevance of theory to daily tasks in the classroom (Tang, Wong & Cheng, 2016). While these studies show the tendency to privilege practice over theory, in the study developed by Allen and Wright (2014) on a Master's programme in postgraduate teaching, student teachers widely valued both the theoretical and practical components in their programme. Taken together, these studies are important for understanding the subjective experiences of student teachers and assessing the value of different aspects of ITE (Tang, Wong & Cheng, 2016).

The theory-practice debate is a perennial issue in the field of teacher education (Korthagen, 2010; Kessels & Korthagen, 1996; Shulman, 1998), and the issue has been analysed in the structural arrangement of ITE programmes. Hennissen, Beckers, and Moerkerke (2017) identify two major approaches of the ITE programme structure regarding the theory-practice relationship: (1) a deductive (theory--first) approach which begins with theory and focuses on how to use theory in practice, and (2) an inductive (practice-first) approach which starts with practical experiences and the need to link them to theory (Tang et al., 2019).

Research that examines student teachers' perspectives suggests that they tend to prioritise practice over the more theoretical aspects of ITE (Mayer et al., 2015; Tang, Wong & Cheng, 2012; Hobson et al., 2008) and judge the value of theory with respect to direct relevance to daily tasks in the classroom (Tang et al., 2019; Wæge & Haugaløkken, 2013).

The implementation of research in ITE has been internationally identified as a key element in its development and improvement (Flores, 2016b; Munthe & Rogne, 2015; Niemi & Nevgi, 2014; Kansanen 2014). Flores (2016b, p. 212) notes that "in some cases it is non--existent; in other cases it is not explicit in the curriculum but it is up to the training institutions to foster the development of student teachers' research competences, for instance during practicum; and, in other cases, an explicit curriculum unit on research methods is included in the curriculum as well as an inquiry approach to the practicum". Thus, it is essential that student teachers develop deep understandings about teaching and learning by investigating their

own practice, as learning to be a teacher is a complex, contextual and idiosyncratic process (Flores, 2019b, 2006, 2001).

Teacher Education in Portugal and Poland

Portugal and Poland are both part of the European Union and thus, despite many cultural differences, there are also similar aspects that led us to consider these two countries in the present study.

Teacher education in Portugal and Poland, especially Initial Teacher Education, is – similarly to other European countries – part of the higher education system (Madalińska-Michalak, 2018). In Poland in 2005 and in Portugal in 2006, the governments approved acts that made changes to the new model of higher education organisation regarding studies and their duration, in accordance with the principles of the Bologna Declaration (in Poland, the Law on Higher Education Act of 27 July 2005; in Portugal, Decree-Law No. 74/2006 of 24 March). In both countries, higher education is organised into a binary system consisting of university education and polytechnic education, each with distinct purposes that translate into specific curricular concepts (Rede Eurydice, 2010). The first cycle of the higher education system – undergraduate level – lasts for three years; the second cycle – Master's degree level – lasts for two years, and the Integrated Master's degree combines the first and second cycles (five years); and the third cycle – Ph.D. – lasts for a maximum of five years. Under the Bologna Process, a number of common tools have been developed to support the transformation process for more student-focused systems. These include the European Credit Transfer and Accumulation System (ECTS), the Diploma Supplement and the National Qualification Frameworks. In the course of the Bologna Process, the ECTS has clearly emerged as a crucial element in a process aimed at making European higher education more transparent and intelligible (Rede Eurydice, 2009; Stachowiak-Kudła, 2012).

The ITE programmes in Portugal have been restructured as a result of the implementation of the Bologna Process. According to the legal framework (Decree-Law No. 43/2007), the professional qualifications for teaching (from pre-school to secondary education) are to be based on a number of key elements: (i) a higher professional qualification for teachers (second-cycle level, i.e. Master's degree); (ii) a curriculum based on learning outcomes in the light of teacher

performance; (iii) a research-based qualification; (iv) the importance of practicum (observation and collaboration in teaching situations under the supervision of a mentor/supervisor); (v) school-university partnerships; and (vi) the quality assurance of teachers' qualifications and ITE (Flores & Ferreira, 2016). In 2014, a new legal framework for ITE in Portugal was published (Decree-Law No. 79/2014), which includes the following curriculum components: (i) training in the subject matter; (ii) general educational training; (iii) specific didactics (for a given level of teaching and subject matter); (iv) cultural, social and ethical education; and (v) professional practice (Flores & Ferreira, 2016).

In Poland, from 1990 up to 2015, ITE was provided within two sectors of the education system: the higher education sector and the school education sector. Degree programmes, including first-, second- and long-cycle programmes, were offered within university type HEIs, namely universities, technical universities, polytechnics and academies. Non-degree postgraduate programmes were offered in non--university HEIs (with no rights to confer the academic degree of doctor). In the school education sector, college programmes, including teacher training colleges and foreign language teacher training colleges, were offered. From 2015 onwards, ITE has only been offered at higher education institutions.

ITE and training standards were formulated in the Regulations of the Minister of Science and Higher Education on initial teacher training standards (2012, 2019). This legislation regulates ITE for school education teachers, thus defining training models or paths that lead to the qualifications required to enter the teaching profession. However, a huge level of autonomy was left to the universities that were responsible for designing the programmes for prospective teachers.

In the current context, the minimum qualification for teaching at pre-primary and primary level (the first stage: grades 1–3) is still a tertiary education degree at bachelor level, which is obtained after three years. However, pursuant to the Regulation of the Minister of Science and Higher Education of 27 September 2018 and the Regulation of the Minister of Science and Higher Education of 25 July 2019 regarding ITE studies, studies in the field of pre-school and early school education are conducted – as they were before 2005 – as uniform five-year Master's studies. This has obvious consequences for teacher education in this field.

For those intending to work at primary schools (the second stage: grades 4–8) and at upper secondary level, the final qualification is a Master's degree. At present, teachers who hold a higher education diploma (a bachelor's or Master's degree) represent 98% of all teachers working in the school education sector. Master's degree studies seem to be the most popular route of training for teachers in school education of all levels. In Poland, the high quality of pre-school education is guaranteed by the very well-prepared teaching staff at nursery schools. They are mostly university graduates holding a Master's degree (84.0% of teaching staff) or, less often, a bachelor's degree (11.8%) (Madalińska-Michalak, 2017).

Two models of initial training exist side by side: the first is the concurrent model, which is the prevalent one. Students following a degree programme in a given field of study may choose a teacher specialisation track; in this way, they complete their professional teacher training and acquire a teaching qualification, as part of their degree programme, parallel to their subject-specific training. The second is the consecutive model, which is available to those who have not taken a teacher specialisation track as part of a degree programme in a given field of study and choose the teaching profession later. They may obtain a teaching qualification upon the completion of a non--degree postgraduate programme or a qualification course (Kolanowska, 2018).

Method and data collection

Data were obtained through the administration of a survey to university students in both countries. In Portugal, data were collected between February and June 2017. After obtaining the authorisation to conduct the study from the Presidents of Faculties, Schools and Institutes and from the Presidents of the Pedagogical Council of each Faculty, School and Institute, acceptance was obtained from directors of the programmes. In Poland, data were collected between February and June 2018. After obtaining the authorisation to conduct the study, the questionnaire was translated into Polish and subsequently validated by higher education experts. A face-to-face questionnaire was administered by the researcher in both countries to student teachers attending all years of studies in teacher education programmes of the 1st and 2nd cycles of studies.

Participants

In total, 789 student teachers participated: 355 Portuguese students from five public universities and 434 Polish students from four public universities. Missing information relates to the fact that some students did not answer the question. A detailed description of the demographic characteristics of the participants is presented in Table 1.

Table 1. Demographic characteristics of the participants

DEMOGRAPHIC CHARACTERISTICS	PORTUGAL		POLAND	
	N	%	*N*	%
GENDER				
Male	57	16.1	16	3.7
Female	280	78.9	407	93.8
Missing	18	5.0	11	2.5
AGE				
Under 20	97	27.3	74	17.1
[20–25]	191	53.8	323	74.4
[26–30]	22	6.2	18	4.1
[31–35]	17	4.8	7	1.6
[36–40]	13	3.7	9	2.1
Over 40	13	3.7	1	0.2
Missing	2	0.5	2	0.5
CYCLE OF STUDY				
Undergraduate	194	54.6	268	61.8
Master's degree	161	45.4	166	38.2
YEAR OF STUDY				
1st year	183	51.6	262	60.4
2nd year	109	30.7	75	17.3
3rd year	61	17.2	96	22.1
4th year	-	-	1	0.2
Missing	2	0.5	-	-
Total	**355**	**100.0**	**434**	**100.0**

Instruments

The construction of the scales was based upon previous work (Flores et al., 2019a; Pereira, 2011, 2016). The scale of the ideas associated with assessment included 14 items that comprised positive ideas (e.g. learning, reflection, success, help), negative ideas (e.g. unfairness, anxiety, fear) and neutral ideas (e.g. grades, verification of knowledge, tests). The list of ideas was derived from the literature, namely from the work done by Hadji (1994) and Figari (1996) related to functions of assessment.

The second scale, related to assessment methods, included 14 items comprising learner-centred methods (e.g. project-based work, portfolios, practical work) and traditional methods (e.g. tests/exams, oral tests). The list of methods was derived from the literature, namely Flores et al. (2015), Webber (2012), Struyven, Dochy and Janssens (2005) and Falchikov (2005). A four-point Likert scale was used in both cases, ranging from 1 = not at all to 4 = a lot, in order to identify the frequency of the ideas associated with assessment and methods used in both countries.

Data analysis

Data obtained through the "ideas associated with assessment" scale were subject to a descriptive data analysis using SPSS (Statistical Package for the Social Sciences) software version 26 to understand which ideas are most associated with the assessment.

In Table 2, a list of items considered in the questionnaires is presented. Students used a Likert scale in which 1 = not at all, 2 = a little, 3 = fairly, and 4 = a lot to select the answer that best suited their experiences as students in higher education. The number of responses (*n*) for each of the 14 items and the respective percentages (%) are also displayed. Data from both countries are presented.

Table 2. Descriptive analysis of the "ideas associated with assessment" scale

	PORTUGAL				POLAND			
ITEM	*N*		%		*N*		%	
	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT
1. Verification of knowledge	70	283	19.7	79.7	76	354	17.5	81.6
2. Negotiation	252	102	71.0	28.8	339	91	78.1	21.0
3. Participation	105	241	29.6	67.9	298	130	68.6	29.9
4. Imposition	216	134	60.8	37.8	147	283	33.9	65.2
5. Conflict	278	75	78.3	21.1	379	53	87.3	12.2
6. Success	68	282	19.2	80.4	157	274	36.2	63.1
7. Grades	27	326	7.6	91.8	114	316	26.2	72.8
8. Tests/Exams	56	297	15.7	83.7	38	395	8.8	95.7
9. Reflection	103	249	29.0	70.2	267	163	61.5	37.8
10. Learning	57	294	16.0	82.8	50	380	11.5	87.5
11. Unfairness	221	132	62.3	37.2	294	138	67.7	31.8
12. Help	154	196	43.4	55.2	262	168	60.3	38.7
13. Anxiety / Stress	92	259	25.9	73.0	129	304	29.7	70.1
14. Fear	139	199	39.2	56	193	229	44.5	52.8

Data obtained through the "assessment methods" scale were also subject to a descriptive data analysis using SPSS version 26 to understand which assessment methods are most used by teachers to assess students.

In Table 3, a list of items related to the assessment methods scale is presented. Students used a Likert scale in which 1 = not at all, 2 = a little, 3 = fairly, and 4 = a lot to select the answer that best suited their experiences as students in higher education. The number of responses (*n*) for each of the 14 items and the respective percentages (%) are also displayed. Data from both countries are presented.

Table 3. Descriptive analysis of the "assessment methods" scale

	PORTUGAL				POLAND			
ITEM	*N*		%		*N*		%	
	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT	NOT AT ALL /A LITTLE	FAIRLY /A LOT
1. Written Tests / Exams	82	271	23.1	76.4	44	389	10.1	89.9
2. Oral Tests / Exams	238	109	67.0	30.7	339	94	78.1	21.6
3. Collective Portfolios	248	103	69.8	29.0	352	63	81.1	14.5
4. Individual Portfolios	225	126	63.3	35.5	365	67	84.1	15.5
5. Individual practical or experimental work	132	147	37.2	41.4	373	56	86.0	12.9
6. Practical or experimental group work	54	296	15.2	83.3	312	120	71.9	27.7
7. Individual projects	212	138	59.7	38.9	285	147	65.6	33.8
8. Group projects	108	244	30.4	68.8	150	283	34.6	65.2
9. Individual reports	143	207	40.3	58.3	353	76	81.4	17.5
10. Group reports	112	240	31.5	67.7	357	73	82.2	16.8
11. Individual written reflections	142	210	40.0	59.1	244	188	56.3	43.3
12. Reflections written in a group	163	124	45.9	34.9	299	95	68.9	21.9
13. Individual oral presentations	206	88	58.1	24.8	283	149	65.2	34.4
14. Group oral presentations	47	298	13.5	83.9	174	256	40.1	59.0

Data from the ideas associated with assessment scale were subject to an exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA), resulting in a 3-factor model, in which the factors were as follows: (1) formative purpose of assessment; (2) summative purpose of assessment; and (3) negative emotions associated with the assessment. Table 4 shows that an EFA was performed using the data of the calibration sample in order to explore the factors underlying the data. These models used

an oblique geomin rotation, and a minimum loading of .30 was required for practical significance. The resulting structure was then tested in the cross-validation sample using a CFA. The model's modification was performed based on modification indices with reference to standardised expected parameter changes. Composite reliability was also assessed by computing McDonald's omega coefficient (ω). Values higher than .70 were considered adequate (Hair et al., 2009).

Table 4. Factors of the "ideas associated with assessment" scale

FACTOR	ITEMS	PORTUGAL			POLAND		
		N	M	SD	N	M	SD
Formative purpose of the assessment	3. Participation 6. Success 9. Reflection 10. Learning 12. Help	337	2.83	0.47	420	2.53	0.49
Summative purpose of the assessment	1. Verification of knowledge 7. Grades 8. Tests / Exams	351	3.14	0.51	427	3.20	0.52
Negative emotions associated with the assessment	13. Anxiety / Stress 14. Fear	337	2.91	0.85	422	2.86	0.92
	Total	355			434		

M = mean; SD = standard deviation.

Data obtained through the assessment methods scale were subject to an EFA and a CFA, resulting in a 3-factor model: (1) collective assessment methods, (2) individual assessment methods, and (3) portfolios. Table 5 shows that an EFA was performed using the data of the calibration sample in order to explore the factors underlying the data. These models used an oblique geomin rotation, and a minimum loading of .30 was required for practical significance. The resulting structure was then tested in the cross-validation sample using a CFA. The model's modification was performed based on modification indices with reference to standardised expected parameter changes. Composite reliability was also assessed by computing McDonald's omega coefficient (ω). Values higher than .70 were considered adequate (Hair et al., 2009).

Table 5. Factors of the "assessment methods" scale

FACTOR	ITEMS	PORTUGAL			POLAND		
		n	*M*	*SD*	*n*	*M*	*SD*
Collective methods of assessment	6. Practical or experimental group work 8. Group projects 10. Group reports 14. Group oral presentations	342	3.00	0.59	425	2.30	0.92
Individual methods of assessment	7. Individual projects 9. Individual reports 11. Individual written reflections 13. Individual oral presentations	343	2.47	0.73	427	2.62	0.64
Portfolios	3. Collective portfolios 4. Individual portfolios	349	2.11	0.85	432	1.72	0.48
	Total	355			434		

M = mean; SD = standard deviation.

As for the "ideas associated with assessment" scale, the analysis of the data of the Portuguese participants revealed that they associate assessment with more positive ideas such as participation, success, reflection, learning and help and neutral ideas such as verification of knowledge, grades and tests. The ideas less associated with assessment were negotiation, imposition, conflict and unfairness. As for Polish students, they associate assessment with ideas such as verification of knowledge, grades and tests (neutral ideas), success and learning (positive ideas) and anxiety and fear (negative ideas). The ideas less associated with assessment were negotiation, participation, conflict, reflection, unfairness and help.

These results reveal that Portuguese and Polish students do not have a similar understanding of the ideas most associated with assessment, since the Portuguese students associated more positive ideas with it and the Polish students identified more neutral ideas. In a general comparative perspective (Table 2), negotiation is the idea least associated with assessment by both student groups. As for the idea most associated with assessment, in the case of Portuguese students

it is grades (n = 326; f = 91.8%), while for Polish students it is tests/exams (n = 395; f = 95.7%).

With regard to assessment methods, Portuguese students identified written tests/exams, individual practical or experimental work, practical or experimental group work, group projects, individual reports, group reports, individual written reflections, and group oral presentations as the most used methods. As for Polish students, the results show that the most used methods are written tests/exams, group projects and group oral presentations. From a general comparative perspective (Table 3), it is possible to state that both groups of students consider tests/exams the method most used by teachers. The least used methods were, in Portugal, collective portfolios (n = 248; f = 69.8%) and, in Poland, individual practical or experimental work (n = 373; f = 86.0%). In contrast, the methods most used by teachers were, in Portugal, group oral presentations (n = 298; f = 83.9%) and, in Poland, written tests/exams (n = 389; f = 89.9%).

In general, students in both countries associate the summative purpose with assessment (grades, tests/exams and verification of knowledge) more than the formative purpose (reflection, learning, participation, help and success) (see Table 4). These data are consistent with results found in other studies that suggest that university students perceive assessment as summative and with little involvement on the part of the students (Flores, 2019b; Barreira et al., 2017; Fernandes, 2015). Educational contexts are mainly oriented towards the classification and hierarchisation of student results. The ideas associated with the summative purpose of assessment are mainly related to the frequent use of written tests/exams.

The analysis of the assessment methods scale shows that Portuguese students are also assessed through collective and portfolio methods, while Polish students are assessed mostly by written tests/exams, group projects and group oral presentations, with limited use of portfolios (see Table 5). As the participants in this study are student teachers, it is important to know which ideas are most associated with assessment and which assessment methods are most used, as these students will be teachers and will need to assess their students. Hence, it is essential for students to have a positive perception of assessment and the different methods that can be used in order to enhance the performance of their future students. Through this

analysis, it is possible to say that Portuguese students are assessed through a greater variety of individual and group methods, while Polish students are assessed using a smaller range of methods.

Conclusions and implications

In the context of higher education, assessment takes place mainly on a summative dimension along with the certification of student learning (Flores et al., 2019b; Mimirinis, 2019; Vergés Bausili, 2018; Liu & Carless, 2006), but ideally it also presupposes formative assessment and the improvement of the teaching and learning process (Gulikers et al., 2008; Boud & Falchikov, 2007; Biggs, 2003; Brown, Bull & Pendlebury, 1997; Brown & Knight, 1994). Therefore, teachers need to be aware that they should use a variety of assessment tasks, the two most common types being formative (designed primarily to improve learning) and summative (designed primarily to judge learning) (Crisp, 2012). There has been a consistency in the evidence presented in the higher education learning and teaching literature over the past decade that indicates that student learning outcomes may be significantly improved through the provision of formative assessments that are coupled with timely feedback (Crisp, 2012; Gibbs, 2006; Nicol & Macfarlane-Dick, 2006). Although summative assessments may still dominate the attention of many students because of their often high stakes consequences, higher education institutions are incorporating the requirement for formative assessment opportunities in their assessment policies (Crisp, 2012; Chalmers, 2007). In general, research on assessment in higher education reveals, on the one hand, that tests are the most used assessment methods (Flores et al., 2019b, 2015; Pereira, Niklasson & Flores, 2017) and, on the other, that assessment is seen by students as more effective and fairer when it is carried out using student-centred assessment methods or mixed methods, which include traditional and alternative methods (Pereira, Flores & Barros, 2017; Flores et al., 2015).

The ideas most associated with assessment are, in general, related to four main aspects: assessment itself, learning, positive ideas and negative ideas (Pereira, Niklasson & Flores, 2017). The negative feelings reported were anxiety, stress and fear. Earlier studies (Craddock & Mathias, 2009; Race, 1995) have indicated that these negative feelings influence and reduce the academic performance

of students. Thus, students' perceptions of assessment will affect their involvement in the learning process (Biggs, 2003).

Our study proves to be pertinent and timely because we are in a time where assessment is at the heart of higher education institutions, whether related to the assessment of students, teachers or even the institutions themselves, in the search for better quality. As such, better results provide greater visibility, attracting more students and more economic power (Koscielniak, 2014; Heck, Johnsrud & Rosser, 2000). The current emphasis on assessment also implies that evidence of student learning is used as crucial evidence for the quality of programmes in higher education. The growing importance of such evidence appears to be a trend around the world (Praslova, 2010). In addition, this study is innovative, since, to our knowledge, no comparative studies have been carried out in order to understand the ideas that Portuguese and Polish student teachers associate with assessment and the most used assessment methods. Anyone is able to talk about what it is, generically, to assess. But it is important to understand it from the students' own experiences. Our participants are student teachers, contrary to other future professionals, as these students already know the context in which they will exercise their activity: schools and classrooms. Long-term contact with their future profession, through the observations of their teachers, will affect, to a greater or lesser extent, their understanding and teaching practices, both as teacher candidates and as new teachers (Flores, 2010). Thus, it is essential that student teachers develop deep understandings about teaching and learning, including assessment, by investigating their own practices (Flores, 2019b).

References

- Allal, L. (2019). Assessment and the co-regulation of learning in the classroom, *Assessment in Education: Principles, Policy & Practice*, 1–18, DOI: 10.1080/0969594X.2019.1609411
- Allen, J. and Wright, S. (2014). Integrating theory and practice in the pre-service teacher education practicum, *Teachers and Teaching*, *20*, 136–151.
- Baird, J.A., Andrich, D., Hopfenbeck and T., Stobart, G. (2017). Assessment and learning: fields apart?, *Assessment in Education: Principles, Policy & Practice*, *24*(3), 317–350.

- Barreira, C., Bidarra, G., Monteiro, F., Vaz-Rebelo, P. and Alferes, V. (2017). Avaliação das aprendizagens no ensino superior. Perceções de professores e estudantes nas universidades portuguesas, *Revista Iberoamericana de Educación Superior*, *8*(21), 24–36.
- Biggs, J. (2003). *Teaching for quality learning at university*. Buckingham: Open University Press.
- Black, P. and Wiliam, D. (1998). Assessment and Classroom Learning, *Assessment in Education: Principles, Policy & Practice*, *5*(1), 7–74.
- Bloxham, S. and Boyd, P. (2007). *Developing effective assessment in higher education: A practical guide*. Milton Keynes: Open University Press.
- Boud, D. (1990). Assessment and promotion of academic values, *Studies in Higher Education*, *15*(1), 101–113.
- Boud, D. (2000), Sustainable Assessment: Rethinking assessment for the learning society, *Studies in Continuing Education*, *22*(2), 151–167.
- Boud, D. and Falchikov, N. (2005). Redesigning assessment for learning beyond higher education, *Higher Education*, *28*, 34–41
- Boud, D. and Falchikov, N. (2006). Aligning Assessment with Long Term Learning, *Assessment and Evaluation in Higher Education*, *31*(4), 399–413.
- Boud, D. and Falchikov, N. (2007). *Rethinking assessment in higher education: learning for the long term*. New York: Routledge.
- Bourner, T. (2003). Assessing reflective learning, *Education and Training*, *45*(4/5), 267–272.
- Brante, G., Olander, M., Holmquist, P. and Palla, M. (2015). Theorising Teaching and Learning: Preservice Teachers' Theoretical Awareness of Learning, *European Journal of Teacher Education*, *38*(1), 102–118.
- Broadfoot, P. and Black, P. (2004). Redefining Assessment? the First Ten Years of Assessment in Education, *Assessment in Education: Principles, Policy & Practice*, *11*(1), 7–26.
- Brown, N.A., Dewey, D.P. and Cox, T.L. (2014). Assessing the Validity of Can-Do Statements in Retrospective (Then-Now) Self-Assessment, *Foreign Language Annals, 47*(2), 261–285.
- Brown, G., Bull, J. and Pendlebury, M. (1997). *Assessing student learning in higher education*. London: Routledge.
- Brown, H.D. (2004). *Language Assessment: Principles and Classroom Practice*. New York: Longman.
- Brown, S. (2005), Assessment for Learning, *Learning and Teaching in Higher Education*, *1*, 81–89.

- Brown, S. and Glasner, A. (1999). *Assessment Matters in Higher Education*. Buckingham: Open University Press.
- Brown, S. and Knight, P. (1994). *Assessing Learners in Higher Education*. London: Kogan Page.
- Byrne, M., Finlayson, O., Flood, B., Lyons, O. and Willis, P. (2010). A Comparison of the learning approaches of accounting and science students at an Irish university, *Journal of Further and Higher Education*, *34*(3), 369–383.
- Byrne, M. and Flood, B. (2005). A study of accounting students' motives, expectations and preparedness for higher education, *Journal of Further and Higher Education*, *29*(2), 111–124.
- Carless, D. (2007). Learning-oriented assessment: conceptual bases and practical implications, *Innovations in Education and Teaching International*, *44*(1), 57–66.
- Carless, D. (2011). *From Testing to Productive Student Learning: Implementing Formative Assessment in Confucian-Heritage Settings*. New York: Routledge.
- Chalmers, D. (2007). *A review of Australian and international quality systems and indicators of learning and teaching, ALTC Project Report*. www.altc.edu.au/resource-reviewindicators- teaching-learning
- Childs, A. and Menter, I. (2013). Teacher Education in the 21st Century in England: A Case Study in Neo-Liberal Policy, *Revista Espanola de Educacion Camparada*, *22*, 93–116.
- Craddock, D. and Mathias, H. (2009). Assessment options in higher education, *Assessment & Evaluation in Higher Education*, *34*(2), 127–140.
- Crisp, G. (2012). Integrative assessment: reframing assessment practice for current and future learning, *Assessment & Evaluation in Higher Education*, *37*(1), 33–43.
- Darling-Hammond, L. (2012). Teacher Preparation and Development in the United States: A Changing Policy Landscape. In: L. Darling-Hammond, A. Lieberman (eds.), *Teacher Education around the World. Changing Policies and Practices* (pp. 130–150). London: Routledge.
- Darling-Hammond, L., Newton, X. and Wei, R.C. (2010). Evaluating teacher education outcomes: A study of the Stanford Teacher Education Programme, *Journal of Education for Teaching*, *36*, 369–388.
- Dochy, F., Segers, M. and Sluijsmans, D. (1999). The Use of Self-, Peer-, and Co--assessment in Higher Education: A Review, *Studies in Higher Education*, *24*(3), 331–350.
- Donald, S. (2010). International perspectives on research in initial teacher education and some emerging issues, *Journal of Education for Teaching*, *36*(4), 345–351.

- Donitsa-Schmidt, S. and Weinberger, Y. (2014). Do Alternative Teacher Education Programs Manage to Attract Different Candidates and Students?, *Teacher Development*, *18*(4), 530–545.
- Eurydice/European Commission/EACEA (2018). *Teaching Careers in Europe: Access, Progression and Support. Eurydice Report*. Luxembourg: Publications Office of the European Union.
- Evans, L. (2010). Professionals or technicians? Teacher preparation programs and occupational understandings, *Teachers and Teaching*, *16*, 183–205.
- Falchikov, N. (2005). *Improving assessment through student involvement: practical solutions for aiding learning in higher and further education*. London: Routledge Falmer.
- Falchikov, N. (2007). The Place of Peers in Learning and Assessment. In: D. Boud, N. Falchikov (eds.), *Rethinking Assessment in Higher Education: Learning for the Longer Term* (pp. 128–143). New York: Routledge.
- Fernandes, D. (2015). Pesquisa de percepções e práticas de avaliação no ensino universitário português, *Estudos em Avaliação Educacional*, *26*(63), 596–629.
- Flores, M.A. (2001). Person and Context in Becoming a New Teacher, *Journal of Education for Teaching*, *27*(2), 135–148.
- Flores, M.A. (2006). Being a Novice Teacher in Two Different Settings: Struggles, Continuities, and Discontinuities, *Teachers College Record*, *108*(10), 2021–2052.
- Flores, M.A. (2010). Algumas reflexões em torno da formação inicial de professores, *Educação*, *33*(3), 182–188.
- Flores, M.A. (2011). Curriculum of initial teacher education in Portugal: New contexts, old problems, *Journal of Education for Teaching*, *37*, 461–470.
- Flores, M.A. (2016a). Contexts of teaching and professional learning, *Teachers and Teaching*, *22*(2), 127–130.
- Flores, M.A. (2016b). Teacher Education Curriculum. In: J. Loughran, M.L. Hamilton (eds.), *International Handbook of Teacher Education* (pp. 187–230). Dordrecht: Springer.
- Flores, M.A. (2017). Practice, theory and research in initial teacher education: international perspectives, *European Journal of Teacher Education*, *40*(3), 287–290.
- Flores, M.A. (2019a). Learning to be a teacher: mentoring, collaboration and professional practice, *European Journal of Teacher Education*, *42*(5), 535–538.
- Flores, M.A. (2019b). Introdução. In: M.A. Flores, *Avaliação no Ensino Superior: Conceções e Práticas* (pp. 15–21). Santo Tirso: De Facto Editores.

- Flores, M.A. (2020). Feeling like a student but thinking like a teacher: a study of the development of professional identity in initial teacher education, *Journal of Education for Teaching*, *46*(2), 145–158.
- Flores, M.A. and Ferreira, F.I. (2016). Education and child poverty in times of austerity in Portugal: implications for teachers and teacher education, *Journal of Education for Teaching*, *42*(4), 404–416.
- Flores, M.A., Pereira, D., Fernandes, E., Santos, P., Pinheiro, C. and Coutinho, C. (2019a). O projeto de investigação. In: M.A. Flores, *Avaliação no Ensino Superior: Conceções e Práticas* (pp. 49–74). Santo Tirso: De Facto Editores.
- Flores, M.A., Pereira, D., Fernandes, E. and Coutinho, C. (2019b), Conclusões e Implicações. In: M.A. Flores, *Avaliação no Ensino Superior: Conceções e Práticas* (pp. 229–254). Santo Tirso: De Facto Editores.
- Flores, M., Veiga Simão, M., Barros, A. and Pereira, D. (2015). Perceptions of effectiveness, fairness and feedback of assessment methods: a study in higher education, *Studies in Higher Education*, *40*(9), 1523–1534.
- Flores, M.A., Vieira, F., Silva, J.L. and Almeida, J. (2016). Integrating Research into the Practicum: Inquiring into Inquiry based Professional Development in Post-Bologna Initial Teacher Education in Portugal. In: M.A. Flores, T. Al-Barwani (eds.), *Redefining Teacher Education for the post-2015 Era: Global Challenges and Best Practice* (pp. 109–124). New York: Nova Science.
- Figari, G. (1996). *Avaliar: que referencial?*. Porto: Porto Editora.
- Filipkowski, A. (2003). The implementation of the Bologna Declaration in Poland, *European Journal of Engineering Education*, *28*(2), 237–245.
- Freeman, M. (1995). Peer Assessment by Groups of Group Work, *Assessment & Evaluation in Higher Education*, *20*(3), 289-300.
- Friese, M. (2016). Vocational Teacher Training in Germany, *Obrazovanie i samorazvitie – Education and Self-Development*, *11*(3), 28–35.
- Gibbs, G. (1999). Using Assessment Strategically to Change the Way Students Learn. In: S. Brown, A. Glasner, *Assessment Matters in Higher Education: Choosing and Using Diverse Approaches* (pp. 41–53). Buckingham: Open University Press.
- Gibbs, G. (2006). Why assessment is changing. In: C. Bryan, K. Clegg, *Innovative assessment in higher education* (pp. 11–22). London: Routledge.
- Gibbs, G. and Rowntree, D. (1999). *Teaching in Higher Education: Theory and Evidence*. Milton Keynes: Open University Press.
- Goodwin, A. (2012). Quality Teachers, Singapore Style. In: L. Darling-Hammond, A. Lieberman (eds.), *Teacher Education Around the World: Changing Policies and Practices* (pp. 22–43). London: Routledge.

→ Gulikers, J., Kester, L., Kirschner, P. and Bastiaens, T. (2008). The effect of practical experience on perceptions of assessment authenticity, study approach, and learning outcomes, *Learning and Instruction*, *18*, 172–186.
→ Hadji, C. (1994). *A Avaliação, Regras do Jogo. Das Intenções aos Instrumentos*. Porto: Porto Editora.
→ Hammerness, K., Tartwijk, J. van, Snoek, M. (2012). Teacher Preparation in the Netherlands: Shared Visions and Common Features. In: L. Darling--Hammond, A. Lieberman (eds.), *Teacher Education around the World. Changing Policies and Practices* (pp. 44–65). London: Routledge.
→ Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2009). *Multivariate data analysis* (7th ed.). Upper Saddle River: Prentice Hall.
→ Hassan, O., Fox, A. and Hannah, G. (2014). Self- and peer-assessment: Evidence from the accounting and finance discipline, *Accounting Education*, *23*(3), 225–243.
→ Heck, R., Johnsrud, L. and Rosser, V. (2000). Administrative, Effectiveness in Higher Education: Improving Assessment Procedures, *Research in Higher Education*, *41*(6), 663–684.
→ Hennissen, P., Beckers, H. and Moerkerke, G. (2017). Linking Practice to Theory in Teacher Education: A Growth in Cognitive Structures, *Teaching and Teacher Education*, *63*, 314–325.
→ Hernández, R. (2012). Does continuous assessment in higher education support student learning?, *Higher Education*, *64*, 489–502.
→ Heywood, J. (2000). *Assessment in higher education*. London: Jessica Kingsley.
→ Hill, T. (2016). Do accounting students believe in self-assessment?, *Accounting Education*, *25*(4), 291–305.
→ Hobson, A. J., Malderez, A., Tracey, L., Giannakaki, M., Pell, G. and Tomlinson, P. (2008). Student Teachers' Experiences of Initial Teacher Preparation in England: Core Themes and Variation, *Research Papers in Education*, *23*(4), 407–433.
→ Huba, M.E. and Freed, J. (2000). *Learner-centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Boston: Allyn and Bacon.
→ Hughes, G. (2011). Towards a personal best: a case for introducing ipsative assessment in higher education, *Studies in Higher Education*, *36*(3), 353–367.
→ Imig, D., Wiseman, D. and Imig, S. (2011). Teacher Education in the United States of America, *Journal of Education for Teaching*, *37*(4), 399–408.
→ Jones, N. and Saville, N. (2016). *Learning Oriented Assessment: A Systemic Approach (Studies in Language Testing 45)*. Cambridge: Cambridge University Press.

→ Kahl, D. and Venette, S. (2010). To Lecture or Let Go: A Comparative Analysis of Student Speech Outlines from Teacher-Centered and Learner-Centered Classrooms, *Communication Teacher*, *24*(3), 178–186.
→ Kansanen, P. (2014). Teaching as a Master's Level Profession in Finland: Theoretical Reflections and Practical Solutions. In: O. McNamara, J. Murray, M. Jones (eds.), *Workplace Learning in Teacher Education. International Practice and Policy* (pp. 279–292). Dordrecht: Springer.
→ Kessels, J. and Korthagen, F. (1996). The Relationship between Theory and Practice: Back to Classics, *Educational Researcher*, *25*(3), 17–22.
→ Koscielniak, C. (2014). A consideration of the changing focus on the sustainable development in higher education in Poland, *Journal of Cleaner Production*, *62*, 114–119.
→ Korthagen, F. (2010). The Relationship between Theory and Practice in Teacher Education. In: P. Peterson, E. Baker, B. McGaw (eds.), *International Encyclopaedia of Education* (pp. 669–675). London: Elsevier.
→ Korthagen, F., Loughran and J., Russell, T. (2006). Developing Fundamental Principles for Teacher Education Programs and Practices, *Teaching and Teacher Education*, *22*, 1020–1041.
→ Light, G. and Cox, R. (2003). *Learning and Teaching in Higher Education: The Reflective Professional*. London: Sage Publications.
→ Liu, N. and Carless, D. (2006). Peer feedback: the learning element of peer assessment, *Teaching in Higher Education*, *11*(3), 279–290.
→ Li, X. (2018). Self-assessment as "assessment as learning" in translator and interpreter education: validity and washback, *The Interpreter and Translator Trainer*, *12*(1), 48–67.
→ Li, L. and Gao, F. (2016). The effect of peer assessment on project performance of students at different learning levels, *Assessment & Evaluation in Higher Education*, *41*(6), 885–900.
→ Li, L., Liu, X. and Steckelberg, A.L. (2010). Assessor or Assessee: How Student Learning Improves by Giving and Receiving Peer Feedback, *British Journal of Educational Technology*, *41*(3), 525–536.
→ Li, L., Liu, X. and Zhou, Y. (2012). Give and Take: A Re-analysis of Assessor and Assessee's Roles in Technology-facilitated Peer Assessment, *British Journal of Educational Technology*, *43*(3), 376–384.
→ Maclellan, E. (2004). How convincing is alternative assessment for use in higher education?, *Assessment & Evaluation in Higher Education*, *29*(3), 311–321.
→ Madalińska-Michalak, J. (2017). Teacher education in Poland: Towards teachers' career-long professional learning. In: B. Hudson, *Overcoming the fragmentation*

in teacher education policy and practice (pp. 73–100). Cambridge: Cambridge University Press.

→ Madalińska-Michalak, J. (2018). Teacher Education and the Profile of European Teachers. In: A.R. Simões, M. Lourenço, N. Costa (eds.), *Teacher Education Policy and Practice in Europe: Challenges and Opportunities for the Future* (pp. 73–100). New York: Routledge.

→ Malan, M. (2014). *Exploring the perceptions of academic trainees on IFRS learning through a new teaching and learning strategy.* University of Johannesburg: Johannesburg.

→ Malan, M. and Stegmann, N. (2018). Accounting students' experiences of peer assessment: A tool to develop lifelong learning, *South African Journal of Accounting Research*, *32*(2-3), 205–224.

→ Maschke, S. and Stecher, L. (2016). Why Become a Teacher? Considerations on the Initial Study Phase in Teacher Training, *Obrazovanie i samorazvitie – – Education and Self-Development*, *11*(3), 36–44.

→ Mayer, D., Allard, A., Bates, R., Dixon, M., Doecke, B., Kline, J. and Kostogriz, A. (2015). *Studying the Effectiveness of Teacher Education: Final Report*. Melbourne: Deakin University.

→ Mayer, D., Pecheone, R. and Merino, N. (2012). Rethinking Teacher Education in Australia: The Teacher Quality Reforms. In: L. Darling-Hammond, A. Lieberman, *Teacher Education around the World: Changing Policies and Practices* (pp. 110–129). London: Routledge.

→ Mimirinis, M. (2019). Qualitative differences in academics' conceptions of e-assessment. *Assessment & Evaluation in Higher Education*, *44*(2), 233–248. DOI: 10.1080/02602938.2018.1493087

→ Munthe, E. and Rogne, M. (2015). Research Based Teacher Education, *Teaching and Teacher Education*, *46*, 17–24.

→ Myers, C. and Myers, S. (2015). The use of learner-centered assessment practices in the United States: the influence of individual and institutional contexts, *Studies in Higher Education*, *40*(10), 1904–1918.

→ Miller, A., Imrie, B. and Cox, K. (1998). *Student Assessment in Higher Education: a handbook for assessing performance*. London: Kogan Page.

→ Nicol, D. and Macfarlane-Dick, D. (2006). Formative assessment and self--regulated learning: A model and seven principles of good feedback practice, *Studies in Higher Education*, *31*(2), 199–218.

→ Nickel, J. and Zimmer, J. (2019). Professional Identity in Graduating Teacher Candidates, *Teaching Education*, *30*(2), 145–159.

- Niemi, H. and Nevgi, A. (2014). Research Studies and Active Learning Promoting Professional Competences in Finnish Teacher Education, *Teaching and Teacher Education*, *43*, 131–142.
- Panadero, E., Jonsson, A. and Botella, J. (2017). Effects of self-assessment on self--regulated learning and self-efficacy: Four meta-analyses, *Educational Research Review*, *22*, 74–98.
- Panadero, E., Jonsson, A. and Strijbos, J.W. (2016). Scaffolding self-regulated learning through self-assessment and peer assessment: Guidelines for classroom implementation. In: D. Laveault, L. Allal (eds.), *Assessment for learning: Meeting the challenge of implementation* (pp. 311–326). Cham: Springer.
- Patchan, M., Schunn, C., Clark, R. (2018). Accountability in peer assessment: examining the effects of reviewing grades on peer ratings and peer feedback, *Studies in Higher Education*, *43*(12), 2263–2278.
- Patri, M. (2002). The Influence of Peer Feedback on Self- and Peer-assessment of Oral Skills, *Language Testing*, *19*(2), 109–131.
- Perrenoud, P. (1999). *Avaliação, Da excelência à regulação das aprendizagens: entre duas lógicas.* Porto Alegre: Artmed.
- Pereira, D. and Flores, M.A. (2019). Revisão da Literatura. In: M.A. Flores, *Avaliação no Ensino Superior: Conceções e Práticas* (pp. 23–48). Santo Tirso: De Facto Editores.
- Pereira, D., Niklasson, L. and Flores, M.A. (2017). Students' perceptions of assessment: a comparative analysis between Portugal and Sweden, *Higher Education*, *73*(1), 153–173.
- Pereira, D., Flores, M. and Barros, A. (2017). Perceptions of Portuguese undergraduate students about assessment: A study in five public universities, *Educational Studies*, *43*, 442–463.
- Pereira, D., Flores, M., Veiga Simão, A. and Barros, A. (2016). Effectiveness and relevance of feedback in Higher Education: A study of undergraduate students, *Studies in Educational Evaluation*, *49*, 7–14.
- Pereira, D. (2011). *A avaliação das aprendizagens no ensino superior na perspetiva dos estudantes: um estudo exploratório*. Braga: Universidade do Minho.
- Pereira, D. (2016). *Assessment in Higher Education and Quality of Learning: Perceptions, Practices and Implications*. Braga: Universidade do Minho.
- Peterson, E. and Irving, E. (2008). Secondary school students' conceptions of assessment and feedback, *Learning and Instruction*, *18*, 238–250.

→ Pope, N. (2001). An Examination of the Use of Peer Rating for Formative Assessment in the Context of the Theory of Consumption Values, *Assessment & Evaluation in Higher Education*, 26(3), 235–246.
→ Praslova, L. (2010). Adaptation of Kirkpatrick's four level model of training criteria to assessment of learning outcomes and program evaluation in Higher Education, *Educational Assessment, Evaluation and Accountability*, *22*, 215–225.
→ Race, P. (1995). What has assessment done for us – And to us?. In: P. Knight, *Assessment for learning in higher education* (pp. 61–74). London: Kogan Page.
→ Ramon-Casas, M., Nuño, N., Pons, F. and Cunillera, T. (2019). The different impact of a structured peer-assessment task in relation to university undergraduates' initial writing skills, *Assessment & Evaluation in Higher Education*, *44*(5), 653–663.
→ Ramsden, P. (2003). *Learning to Teach in Higher Education* (2nd ed.). London: Routledge Falmer.
→ Rede Eurydice (2009), Ensino superior na Europa 2009: evolução do processo de Bolonha.
→ Rede Eurydice (2010). *Estruturas dos sistemas de educação e formação na Europa. Portugal 2009–2010*.
→ Ryan, M. and Ryan, M. (2013). Theorising a model for teaching and assessing reflective learning in higher education, *Higher Education Research & Development*, *32*(2), 244–257.
→ Rust, C. (2002). The impact of assessment on student learning: how can the research literature practically help to inform the development of departamental assessment strategies and learner-centred assessment practices?, *Active Learning in Higher Education*, *3*(2), 145–158.
→ Sambell, K. and McDowell, L. (1998). The construction of the hidden curriculum: messages and meanings in the assessment of student learning, *Assessment and Evaluation in Higher Education*, *23*(4), 391–402.
→ Shulman, L. (1998). Theory, Practice, and the Education of Professionals, *The Elementary School Journal*, *98*(5), 511–526.
→ Sluijsmans, D., Dochy, F. and Moerkerke, G. (1999). Creating a learning environment by using self, peer- and co-assessment, *Learning Environments Research: An International Journal*, *1*(3), 293–319.
→ Stachowiak-Kudła, M. (2012). *Autonomia szkół wyższych a instytucjonalne mechanizmy zapewnienia jakości w Polsce i wybranych państwach europejskich*. Warsaw: Difin.

- Struyven, K., Dochy, F. and Janssens, S. (2003). Students' perceptions about new modes of assessment in higher education: A review. In: M. Segers, F. Dochy, E. Cascallar (eds.), *Optimising new modes of assessment: In search of qualities and standard* (pp. 171–223). Dordrecht: Kluwer Academic Publishers.
- Tang, S. (2002). *School-based learning in initial teacher education*. Cardiff: Cardiff University.
- Tang, S., Wong, A. and Cheng, M. (2012). Professional Learning in Initial Teacher Education: Vision in the Constructivist Conception of Teaching and Learning, *Journal of Education for Teaching*, *38*(4), 435–451.
- Tang, S., Wong, A. and Cheng, M. (2016). Examining professional learning and the preparation of professionally competent teachers in initial teacher education, *Teachers and Teaching*, *22*(1), 54–69.
- Tang, S., Wong, A., Li, D. and Cheng, M. (2019). Examining student teachers' engagement with the theory-practice link in initial teacher education, *Journal of Education for Teaching*, *45*(2), 123–139.
- Taras, M. (2005). Assessment – summative and formative – some theoretical reflections, *British Journal of Educational Studies*, *53*(4), 466–478.
- Thomas, D., Moore, R., Rundle, O, Emery, S., Greaves, R., Riele, K. and Kowaluk, A. (2019). Elaborating a framework for communicating assessment aims in higher education, Assessment & *Evaluation in Higher Education*, *44*(4), 546–564.
- Thorpe, M. (2000). Encouraging students to reflect as part of the assignment process: student responses and tutor feedback, *Active Learning in Higher Education*, *1*(1), 79–92.
- Townsend, T. (2011). Searching High and Searching Low, Searching East and Searching West: Looking for Trust in Teacher Education, *Journal of Education for Teaching*, *37*(4), 483–499.
- Turner, C. and Purpura, J. (2016). Learning-oriented assessment in second and foreign language classrooms. In: D. Tsagari, J. Baneerjee, *Handbook of Second Language Assessment* (pp. 255–272). Boston: De Gruyter Mouton.
- Valeeva, R. and Gafurov, I. (2017). Initial teacher education in Russia: connecting theory, practice and research, *European Journal of Teacher Education*, *40*(3), 342–360.
- Van Nuland, S. (2011). Teacher Education in Canada, *Journal of Education for Teaching*, *37*(4), 409–421.
- Vergés Bausili, A. (2018). From Piloting E-Submission to Electronic Management of Assessment (EMA): Mapping Grading Journeys, *British Journal of Educational Technology*, *49*(3), 463.478.

→ Vickerman, P. (2009). Student perspectives on formative peer assessment: An attempt to deepen learning?, *Assessment & Evaluation in Higher Education*, *34*(2), 221–230.
→ Villarroel, V., Bloxham, S., Bruna, D., Bruna, C. and Herrera-Seda, C. (2017). Authentic Assessment: Creating a Blueprint for Course Design, *Assessment & Evaluation in Higher Education*, *43*(5), 840–854.
→ Wæge, K. and Haugaløkken, O. (2013). Research-based and hands-on practical teacher education: An attempt to combine the two, *Journal of Education for Teaching*, *39*, 235–249.
→ Webber, K. (2012). The Use of Learner-Centered Assessment in US Colleges and Universities, *Research in Higher Education*, *53*(2), 201–228.
→ Wicking, P. (2020). Formative assessment of students from a Confucian heritage culture: Insights from Japan, *Assessment & Evaluation in Higher Education*, *45*(2), 180–192.
→ Wiliam, D. (2007). Keeping Learning on Track: Formative Assessment and the Regulation of Learning. In: F.K. Lester (ed.), *Second Handbook of Mathematics Teaching and Learning* (pp. 1053–1098). Greenwich: Information Age.
→ Woolhouse, C. and Cochrane, M. (2015). Educational Policy or Practice? Traversing the Conceptual Divide between Subject Knowledge, *Pedagogy and Teacher Identity in England, European Journal of Teacher Education*, *38*(1), 87–101.
→ Yorke, M. (2007). *Assessment, especially in the first year of higher education: Old principles in new wrapping?*. Paper presented at the REAP international online conference on assessment design for learner responsibility, http://ewds.strath.ac.uk/REAP07
→ Zimmerman, B. (2002). Becoming a self-regulated learner: An overview, *Theory into Practice*, *41*(2), 64–70.
→ Zimmermann, P., Flavier, E. and Méard, J. (2012). L'identité professionnelle des enseignants en formation initiale Spiral-E, *Revue de Recherche en Éducation*, *49*, 35–50.

Giving Reading, Thinking and Studying Back to Initial Teacher Education

DOI: 10.47050/66515314.86–107

Tania Alonso-Sainz, Bianca Thoilliez

When the present and the future of Initial Teacher Education (ITE) programmes are discussed, the focus is often on how to relate university lectures to the real practice of teaching, on how to create a more practical and useful environment of learning in ITE. This chapter[1] takes a theoretical approach which considers that (1) everything able to improve ourselves and our practice is useful (Ordine, 2013); (2) study practices define university life for both students and professors and their future (Biesta, 2017; Ingold, 2017); and (3) ITE programmes should provide the time and space to develop the necessary virtues to address the moral density and social responsibility that teaching implies as a professional activity. This chapter presents a university teaching experience within an ITE programme that put to work precisely this theoretical approach.

Keywords:
initial teacher education
reading seminars
lectures
practices of study
thinking skills

1 This work has been done as part of two larger teaching innovation projects at the Universidad Autónoma de Madrid (#PIMeFIM: FPE_017.18_INN and FPYE_010.19_IMP).

Introduction

Since the Bologna Process in the early 2000s, many changes have taken place in European universities, but particularly with regard to learning and teaching. Research on perceptions throughout European universities on this matter shows that "in the area of learning and teaching, there is evidence of many initiatives to increase and widen participation, provide students with opportunities to develop transferable skills through community engagement and to include external stakeholders in core institutional activities" (Sursock, 2015, p. 10). When institutions were asked, most stated that introducing new ways of teaching was important to them. They were also willing to develop new methodologies and activities to create a suitable environment for more active learning. However, many institutions confessed that the implementation of the Bologna Process was taking place without radical ways to improve how curricula and examinations were developed (ibidem, p. 13), concluding that this was an area that still needed some work. This rapid sketch of the European framework coincides with the situation of Faculties of Education in Spain, where they, following the Bologna Process, have happily and rather uncritically shifted from students working individually to working in a team, from lectures to students' presentations, from exams to applied tasks, and from a professor who was a "sage on the stage" to one who is "a guide on the side" (Biesta, 2017). These changes brought some positive elements to university students' academic experiences, such as the ability to co-operate with others, the improvement of oral communication skills, and getting in touch with educational realities through applied research and actual teaching practice. However, while doing this, and this is the argument we want to defend here, Faculties of Education might be forgetting an important feature of university studies: the intellectual formation of student teachers. While being technically and socially trained through the celebrated set of soft skills, they have misguidedly decreased the intellectual education that allows student teachers to judge and to act professionally and critically rather than just efficiently.

The transition of Spanish ITE programmes into the European Higher Education Area ten years ago[2] activated, among many other things, the search for new ways to broaden student participation in one particular module while making sure intellectual training and critical reasoning were not cramped or narrowed along the way, trying instead to ensure that each activity was backed by a comprehensive training purpose.

Breaking the common structure of 60 students per class was one of the first and more visible changes. Instead of trying to juggle theory and practice, teaching and participation, lecturing and teamwork all at the same time, different teaching methodologies, learning spaces, and student participation levels were distributed in different in-class sessions and devoted to work through different module contents. The main pedagogical principle was that the method of knowing an object is imposed by the object, and our object is to learn the foundations of education in the course called "Values Education: Equality and Citizenship".

Thus, it was proposed to divide the mandatory in-class sessions of the module into two main activities: lectures and reading seminars. Lectures were held in a large room with all the students together. During these sessions, students were expected to actively listen and take handwritten notes, punctuated with Socratic question-answer moments. Every week there was a two-hour lecture session. Reading seminars took place once per week in smaller groups of only 15 to 20 students, each lasting for one hour. The groups discussed selected readings on the philosophical and pedagogical ideas of the texts with their module leaders. The purpose of creating small groups was to encourage student participation and engagement with the course contents by creating a closer sense of community of inquiry. Moreover, students were allowed to choose from four different assessment systems. Each student was able to choose their own best way to demonstrate what they had learnt in the final exam.

The purpose of this chapter is to explain what we like to call a pedagogically conservative yet innovative university study experience that has been promoted for the past two academic years at the Faculty

2 To have a clearer understanding about the changes this transition provoked in ITE programmes and where Spanish universities are at now, see Manso (2019).

of Teacher Training and Education at the Universidad Autónoma de Madrid (Spain). It is pedagogically conservative because it aims to reintroduce thinking, reading and writing practices in Initial Teacher Education (ITE). It is an innovative university study experience because ITE students have fewer and fewer opportunities for careful reading, attentive listening, and well-argued conversations in today's mainstream higher education methodological approaches. Thus, what some time ago was seen as "old-fashioned" can today be presented as an actual innovation that breaks the general rule, that changes present landscapes. Specifically, this experience seeks to enrich the university experience of student teachers who enrolled in a course called "Values Education: Equality and Citizenship" in a four--year university ITE programme. A total number of 233 students in the academic year 2018–2019 and 150 students in the academic year 2019–2020 took part in the experiment.

The chapter presents and discusses the reasons to support this pedagogically conservative university innovation as well as the main elements of this pilot experience. Some final conclusions are also presented as a result of this experiment in the framework of teaching and learning during university ITE courses.

Reasons for rethinking ITE programmes

When the present and the future of ITE programmes are discussed, the focus is often on how to relate university lectures to the real practice of teaching, how to create a more practical and useful environment of learning in ITE, or how to be sure that we are assessing the impact of teacher education to improve the self-efficacy of teachers (Darling-Hammond, 2017; Muijs & Reynolds, 2017; Burn & Mutton, 2015).

Nowadays it is also crucial to understand the evidence in favour of teaching one way or another. Evidence-based policies and practices are increasingly not seen as a toolkit to use when needed, but as the main step to improving teaching practices, the teacher's professional development and teacher education (Thoilliez, 2018). There are even publications from Eurydice (2017) that describe the mechanisms and practices that support evidence-based policy-making in the education sector in Europe.

In contrast to this trend are other voices that want to raise the importance of the teachers' own experiences and practices

as professional knowledge, giving a secondary role to what papers, articles, research, statistics or experts can say (Popp & Goldman, 2016; Battersby & Verdi, 2015; Hökkä, Vähäsantanen & Mahlakaarto, 2017; Vanassche & Kelchtermans, 2015). Advocates of this approach see evidence-based policies as a threat to their autonomy and as an affront to their professionalism. Therefore, for them, the main step towards improving the teaching profession would instead be to create more professional learning communities of teachers in order for them to share their professional knowledge based on their teaching experiences. This way, by sharing specific examples of discouragement, anxiety, success or failure, they can help each other to undertake new and better practices in the future.

The perspective offered here is also opposed to the imperative of evidence-based education by arguing that reading, thinking, and studying are the core foundations of teacher education, but without diminishing the relevant part that evidence, methodologies, strategies, and all the didactics can have for the teaching profession. The main thesis is that universities' classic pedagogical activities (reading, studying, thinking, and writing) are still (perhaps more than ever) highly relevant for the growth of a university student, and therefore also for an ITE university student.

Hence, the theoretical approach taken here considers that (1) everything that improves ourselves and our practice is useful (Ordine, 2013); (2) study practices define university life for both students and professors and their future (Biesta, 2017; Ingold, 2017); (3) ITE provides both the time and space to develop the necessary virtues to address the moral density and social responsibility that teaching implies as a professional activity; (4) nowadays there is a lack of pedagogical foundations in the discussions regarding ITE (Biesta, 2017; Thoilliez, 2019); and (5) the teacher needs to engage in critical thinking and authentic choices instead of uncritically accepting a ready-made, standardised scheme (Greene, 1973; Kohli, 2016).

Unlike other explicit theoretical perspectives on the importance of theory or reading in teacher education, a fundamental aspect here is to use lectures and reading seminars to show the students the *usefulness* of the ideas under discussion for the education practice. Lectures and readings offer new horizons, new moral imaginations,

orientations and reasons to improve their pedagogical judgement and thus their teaching practice throughout their career.

The experience we designed to address the needs of ITE at our university is based on the latest data available from the European Commission and Eurydice (2013) to portray the current highlights in ITE in Europe and in Spain. The resulting overview provides a wider understanding of the challenges at both the local and global level:

1. Across Europe, the prevailing qualification for schoolteachers is the bachelor's degree, except for upper secondary teachers, who in most countries are required to have a Master's degree.
2. Spain uses the concurrent model in ITE. This means that the professional component (which provides prospective teachers with both the theoretical and practical skills needed for teaching and includes in-class placements) may be provided at the same time as the general component (which refers to general education courses and mastery of the subject(s) that candidates will teach when qualified). In Spain, over the 4-year degree, students must go to school placements for 700 hours between the second and the fourth year of ITE. However, in the first year, they only have to follow the course, which provides an important factor to consider in our pilot study of a course in the first year of ITE.
3. Within the programmes for pre-primary and primary teachers, specific professional teacher training (which includes theoretical and practical parts and is distinct from education in a particular subject matter) amounts to approximately a third of the whole course load in most countries. In most countries, the minimum requirement for professional training for future pre-primary teachers amounts to at least 25% of the whole programme. The amount of professional training is particularly high in Spain (87.5%). Puzzling in that regard in comparison with secondary teachers in Spain is the fact that secondary student teachers have only 20% of their professional training as part of their Master's degree, in contrast to the 85% that pre-primary and primary student teachers have. This vast difference between them is remarkable and surprising, especially in light of two factors: (i) that secondary student teachers already hold a bachelor's degree in their specific subject; and

(ii) that pre-primary and primary student teachers do not need to do a Master's degree before entering the teaching profession. The fact that practical training is longer for teachers of lower levels of education is a trend in Europe but is especially pronounced in Spain, where it is symptomatic of the social conception of pre-primary and primary teaching as a simplified or reductive craft rather than as a profession. Accordingly, this is reflected in the lack of studying, reading and writing practices in the ITE programme mentioned above.

4. In most countries, central guidelines indicate that ITE programmes should develop students' knowledge and skills with regard to educational research. The problem comes when we try to define "knowledge relating to educational research". Having student teachers enter the field of educational research means inviting them to learn from studies that have already been done, to read what others past and present have written and said about education, and to familiarise them with the educational debates that are going on from a global and local perspective.

With that knowledge, they not only learn what others have already researched, but also to observe, judge, and act better in their educational practice.

However, in Spain, the guidelines on pre-primary and primary teacher training include the perspective of educational research as a methodology to apply. This is why the components that it includes, as stated in a Eurydice report (2013), are: (1) theoretical instruction in educational research methodology, (2) an end-of--study dissertation on pedagogical issues based on the student's own research, (3) the possibility of using educational research in teaching practice being included in a list of final competences, and (4) practical educational research work being conducted during studies.

From this data, the following can be synthesised:

1. The first year of the bachelor's degree is free from school placements, so it is one of the best moments to introduce practices that need more time to be processed, such as reading long papers or comprehending a lecture or a discussion of others' ideas in order to find one's own voice.

2. The short time devoted to "general training" pushes curriculum developers to design the contents, methodology and assessments very carefully, not just in each module but also taking into consideration the role of the module itself in the provision of "general training" knowledge to students.
3. There is a lack of recognition in the pre-primary and primary curricula regarding reading, thinking and studying activities, as they are not considered part of the process of learning how to carry out research in education.

Concerned about this, other scholars in Europe have started to create spaces specifically to discuss this issue. For example, in Leuven, scholars organised a conference[3] on study practices at university and how they shape university life. The result is a special issue of the journal *Philosophy and Theory in Higher Education* entitled "Answering the Question: What is Studying" (forthcoming). In addition, there is the recently published monograph "Studying: Pedagogical Investigations of its Educational Value" in the Spanish journal *Teoría de la Educación: Revista Interuniversitaria*[4]. Moreover, in Spain, there are other recent publications regarding the problems of the reading and studying skills of student teachers (e.g. Elche & Yubero, 2019).

All this motivated us to design the innovative experience at the Universidad Autónoma de Madrid to improve the thinking, reading and studying skills of student teachers in the first year of their ITE programme.

Reading, Thinking and Studying

The traditional university pedagogical practices of reading seminars and lectures were considered worth re-experiencing, re-inviting and restoring, in addition to alternative practices to evaluate student learning. Accordingly, the programme we designed was implemented in the first year of BA programmes in ITE.

3 Reclaiming Study Practices, 18–20 September 2019, Leuven, Belgium, https://ppw.kuleuven.be/phec.

4 See Touriñán 2019; Bárcena 2019; López 2019; Schildermans, Vandenabeele & Vlieghe 2019; Rechia & Cubas 2019, and Larrosa 2019.

A total number of 233 students in the academic year 2018–2019 and 150 in the academic year 2019–2020 who enrolled in the subject "Values Education: Equality and Citizenship" (a mandatory module in the first year of both BA programmes) have so far taken part in this experience. The module consisted of 6 ECTS (European Credit Transfer and Accumulation System) and took place over a 12–13-week period during the first term of the academic year.

The ethos

For the sake of the *ethos* of the course as a BA module, it was very important from the beginning to tell the students the main ideas of the course and the importance of the environment and external tool for them to be better disposed to significant study practices. To meet that purpose, in the first class of the course we explained the goals and some external factors to take care of in order to generate a better environment for the lessons. Students were encouraged to persevere on these points:

1. Punctuality. Classes start on time, so all of them are expected to be punctual. If they are tardy, they have to enter silently. If they arrive ten minutes or more after the beginning of the session, they are not allowed to enter the classroom. The importance of being on time to a university class is for some rather old-fashioned, as pedagogical relaxation has come with an overall relaxation in common basic rules. The idea was therefore to make this requirement part of the students' academic experience in the module.
2. Compact Group. They must sit without gaps between seats in the classroom as a compact group as a way of embodying the community of inquiry and study the module was proposing to them all.
3. Attention Training. The use of any electronic devices was not to be allowed in the classroom, not even for taking notes, because despite the increasing popularity of typing at lectures, there is evidence of the positive impact of handwriting on information processing in education situations (Manzi, Martinez & Durmysheva, 2017).

The study practices

There were mainly two types of study practices: (1) lectures and (2) reading seminars. Following what has been defended by many other teachers these past years (Reyero-García, 2014; Gil-Cantero & Sánchez-Rojo, 2015; Thoilliez & Valle, 2015; Esteban, 2019; Esteban & Escardíbul, 2020), what makes universities recognizable and unique institutions is not their buildings but the particular set of educational practices that they make happen. Thus, what would grant our student teachers the social value they deserve may have something to do with their full participation in the intellectual university life that comes with the study practices of reading, thinking, and writing.

1. Lectures

The purpose of lectures is for the teacher to present the thematic contents of the subject orally. The talks were accompanied by a simple visual support, and it was essential that the students took notes. For each lecture, students were given a list of references to complete and/or expand on the notes they took in class. Lectures took up to 60% of the total amount of the module's compulsory in-class time. Once per week, the group attended 2-hour lectures on the module's contents (see Table 1).

Table 1. Lectures programme (academic years 2018–2019 and 2019–2020)

1. Foundations of Education and Ethics 1.1. Epistemological foundations of education: What is Philosophy of Education? How do we define education? 1.2. Basis of ethical reflection and values education: What is Ethics and why do we need it? Why are values so difficult to define? Why is it necessary but difficult to teach values?
2. Globalisation, Interculturality, Citizenship and Human Rights 2.1. The culture of globalisation and human rights: What is globalisation? How does it affect our relationship with culture? What are human rights? 2.2. Possible pedagogical quests: How do we teach human rights? How do we go from cultural diversity to intercultural education? How do we cultivate global competences?
3. Moral Culture and School Life 3.1. The ethical specificity of pedagogical action with children: What is childhood? What is the "best interest of the child"? 3.2. Reasons and definition of schools' moral culture: Why talk about moral culture in schools? What is a school's moral culture? 3.3. The study of schools' moral culture: What was the pioneering research in the study of schools' moral culture? How can we pedagogically analyze schools' moral practices?

4. Education in Values in the School Curriculum 4.1. Europe's view of citizenship education: Eurydice Reports on "Citizenship Education at School in Europe". 4.2. Social and Civic Competencies in the Spanish curriculum: Definition, Evaluation dimensions. 4.3. Transversality and education in values: Regulatory framework, interdisciplinarity and transversality. 4.4. Curriculum contents on education in values: Social and civic values in Primary Education. What about Pre-primary Education?
5. Democratic Coexistence: Participation and School Mediation 5.1. What is the meaning of living together and how do we teach to live together? Concept of coexistence, Strategic Plan for School Coexistence 2016-2020. 5.2. What school documents articulate living together? The School Coexistence Plan, Tutorial Action Plan, complementary organisational and curricular strategies. 5.3. How to identify and what to do before bullying: Definition of bullying, school plan, the role of educational inspection.
6. School Practices for the Development of Democratic Values 6.1. Do school practices for the development of democratic values do any good? What the Europeans think, what a teacher thinks / what a teacher should think. 6.2. Can we educate by avoiding controversial issues? What is controversial? Why do we avoid talking about controversial issues? Why do we need to address them? What challenges does the teacher face? 6.3. How to educate in democratic values? Three examples: Philosophy for Children (Lipman & Sharp, 1970), Visual Philosophy for Children (Duthie & Martagón, 2014), Documentary "It is only the beginning" (France, 2014).

2. Reading seminars

The purpose of seminars was to live the university experience of careful and concentrated reading and collective discussion around different topics in the module. Students were required to do in-depth reading assignments before each session; they had to come to the session with a printed hardcopy of the reading and a notebook to take notes. They were arranged into different groups, with the time being rotated but not the group, i.e. they stayed with the same group of classmates from the beginning of the course to the end. On the online learning platform, they could see the day and time each session and subgroup were held.

In order for students to get the most out of the reading seminars, they met for one hour a week in smaller groups of 15 to discuss the philosophical and pedagogical ideas in the readings with the module leaders. Each seminar was run five times to accommodate the small discussion groups. This meant that the group leader repeated the same seminar five times each week with the different subgroups of 15 to 20 students. To make that possible, all the students attended the weekly lectures jointly in a larger room.

Every other week we read one chapter from the selected book (Esteban, 2018), and in the other weeks the reading was from a philosopher whose ideas helped the students' understanding of teaching practice, as listed in Table 2 and Table 3.

Table 2. Reading seminars programme (academic year 2018–2019)

1ST WEEK	Selected Book, Chapter 1	Francisco Esteban (2018)
2ND WEEK	Philosopher 1	Adela Cortina (1994)
3RD WEEK	Selected Book, Chapter 2.1	Francisco Esteban (2018)
4TH WEEK	Philosopher 2	Javier Muguerza (1986)
5TH WEEK	Selected Book, Chapter 2.2	Francisco Esteban (2018)
6TH WEEK	Philosopher 3	Max van Manen (1998)
7TH WEEK	Selected Book, Chapter 3	Francisco Esteban (2018)
8TH WEEK	Philosopher 4	Hannah Arendt (1968)
9TH WEEK	Selected Book, Chapter 4	Francisco Esteban (2018)
10TH WEEK	Philosopher 5	Fernando Savater (1997)
11TH WEEK	Selected Book, Chapter 5	Francisco Esteban (2018)
12TH WEEK	Colloquium with the author of the book (Francisco Esteban), where students had the chance to ask him different questions on his book they had read.	

Table 3. Reading seminars programme (academic year 2019–2020)

1ST WEEK	Selected Book, Chapter 1	Francisco Esteban (2018)
2ND WEEK	Philosopher 1	Adela Cortina (1986)
3RD WEEK	Philosopher 2	Iris Murdoch (1971)
4TH WEEK	Selected Book, Chapter 2	Francisco Esteban (2018)
5TH WEEK	Philosopher 3	John Dewey (1916)
6TH WEEK	Selected Book, Chapter 3	Francisco Esteban (2018)
7TH WEEK	Philosopher 4	Paulo Freire (1970)
8TH WEEK	Philosopher 5	Max van Manen (1991)
9TH WEEK	Selected Book, Chapter 4	Francisco Esteban (2018)
10TH WEEK	Philosopher 6	Hannah Arendt (1968)
11TH WEEK	Philosopher 7	Massimo Recalcati (2014)
12TH WEEK **SELECTED BOOK, CHAPTER 5** **FRANCISCO ESTEBAN (2018)**		
13TH WEEK	Philosopher 8	Fernando Savater (1997)

The assessment

Each student was allowed to choose from among four types of final exam as the best way for her/him to demonstrate what she/he had learnt. The exams proposed were intentionally within the traditional university pedagogy, as seen in Table 4.

Table 4. Type of exams offered to the students

TYPE	DESCRIPTION
MULTIPLE CHOICE	Students have the opportunity to demonstrate their knowledge through a 60-question test, of which 60% was taken from the lectures and 40% from the seminars. The multiple-choice test requires in-depth knowledge of many ideas, the ability to differentiate them, and a mastery of the course's contents. Time: Up to 90 minutes.
ORAL	Students have the opportunity to show their knowledge orally. Students go to the exam one by one. In the exam there are always two teachers, and it is recorded with a recorder, as per UAM regulations[5]. The teachers ask the student three questions. Two of the questions are in relation to the lectures and one to the seminars. They are short, specific questions, but they give the student the chance to answer with several topics from the subject. After the question is asked, the student is given two minutes to make an outline on a sheet of paper. Time: Up to 20 minutes.
DISSERTATION	The exams are varied. Some may be on a single concept to be developed, others may be on relating two concepts or answering a question with all the contents of the topic, or an excerpt broad enough for the student to be able to use all her/his knowledge of the subject to relate it. Time: Up to 4 hours.
TEXT COMMENT	A text not worked on in the course is selected, usually from a philosopher who, as in the case of the dissertation, addresses a large number of topics covered in the course so that the student can organise his or her comment by referring to several topics studied. Time: Up to 2.5 hours.

5 Regulation of Academic Evaluation, Universidad Autónoma de Madrid (Approved in the Governing Council of February 8, 2013), which says: "In the case of an oral evaluation test whose maximum grade is 40% or more of the final grade, this will be public for the rest of the students enrolled in the subject and defended before an evaluation commission, which will record in writing the reasons for the grade obtained by the student".

The general evaluation criteria that applied to all exams were:

2. **Contents of the module.** It was key that the content they wrote about be part of the module. It was very important to avoid clichés and trite or general knowledge, i.e. popular phrases and words void of meaning. Students were expected to show how they had appropriated the different contents of the module.
3. **Relevancy and pertinence.** The content must be not merely from the table of contents of the course, but also clearly relevant and pertinent to answering the particular question asked.
4. **Organisation, reasoning and justification.** Good statements without the development of the main idea were not taken into consideration. All the statements had to be argued from all the available sources throughout the module. Careful organisation and the use of connectors were also very important in both oral and written exams.

In the second year, the multiple-choice option was not offered. Students tended to choose that particular option thinking it would be "easier" or "more accessible", but the exam results showed exactly the opposite. The options were therefore limited to oral, dissertation and text comment, as shown by comparing Figure 1 with Figure 2:

Figure 1. Students' performance, academic year 2018–2019

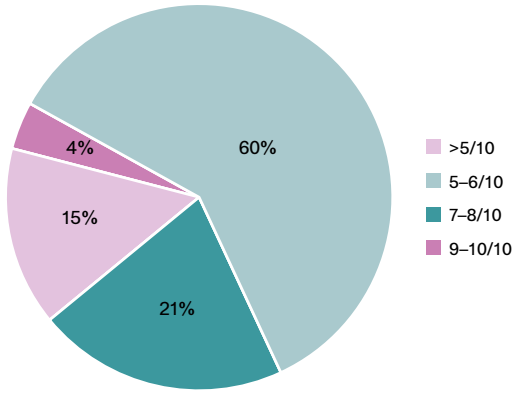
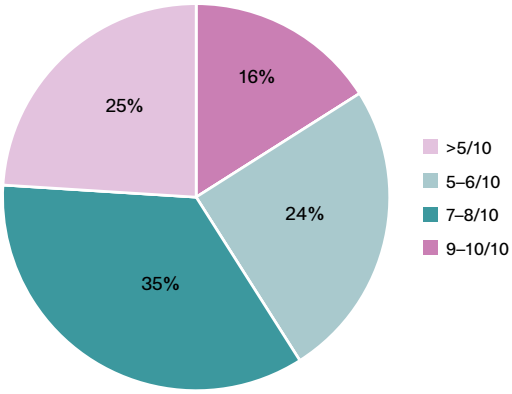


Figure 2. Students' performance, academic year 2019–2020



Results and discussion

The main results of this attempt at giving reading, thinking and studying back to ITE university programmes are summarised below.

First and foremost is **the importance of institutional support**. To join three different groups and divide them, we asked the Dean's Office for permission to make slight modifications to the timetable of one group. It is important to have institutional support on contra-cultural innovations, given that the tendency of many of the actors will be towards resistance. Another idea to bear in mind before implementing this experience is **the key factor of repetition**. The session leaders must be aware that they will repeat the same reading seminars several times in order to foster the participation of each student in the discussion of the readings. Despite being tedious, repeating a lecture has a silver lining: it gave the lecturers a higher level of mastery at leading specific debates and ideas, and testing which kinds of examples, questions, and ways work better in the different groups.

Although it is not always possible, it is highly advisable to have **the help of a teacher assistant in the reading seminars**. Having this help will make it easier to split the seminar groups into smaller ones. Otherwise, an alternative solution could be for the module leader to go around the small groups in the same class of students, helping them come up with better ideas or challenging their questions and helping them with the main ideas of the readings. One of the first things the instructors will notice in these reading seminars is that the **students'**

prejudices are the first barrier to giving reading, thinking and studying back to ITE. Students' expectations and claims during their first year of ITE are very much rooted in a particular idea of finding solid empirical evidence for their practice. One of the reasons for that barrier from the students' perspectives is that **constant comparisons with modern methodologies will be at play**. At the beginning of the experience, the students showed discomfort towards traditional strategies to learning (listening to lectures, reading papers, and studying), because the rest of the modules of the first year used other methodologies closer to contemporary pedagogical approaches that mainly promote soft skills, disregarding studying, thinking, and reading as core activities for the intellectual training mentioned at the beginning of this chapter.

This integral position towards ITE requires the understanding that **time must be our ally**. After some readings and lectures, students started to recognise the importance of studying the broad nature of education as a practice that admits a space for response. This experience makes them become **adult learners with agency**. After a few months on the course, students started listening, asking questions, reading and confronting the authors' papers and leader modules as a starting point to building their pedagogical judgement throughout the BA. Most students in the reading seminars increased their ability to think for themselves, living the academic practices of inquiring, discussing, debating, thinking, and relating new ideas to their professional practice. In the anonymous and voluntary questionnaire they filled out at the end of the course, many of them left comments on this idea. This was one of the most celebrated results. However, as regards the exams, we confirmed that **inertia prevails in choosing the assessment's modality**. Most students in ITE seemed to follow the inertia of their school system experience, making the multiple-choice test modality the most chosen one (90%), thereby sidestepping the option of expressing their knowledge in writing or speech. Nevertheless, that does not mean that students were following the easiest possible path, because **one fourth of them were in pursuit of excellence**, choosing to follow all the extra activities that we proposed. The greatest surprise was the number of students who took on every single voluntary activity, given the low impact those activities would have on their final marks.

Below we conclude and discuss the main findings of this experience with the hope that they will inspire other scholars to justify and

undertake the incorporation of study, reading, and thinking practices in ITE.

One of the main contributions of this work highlights the differential importance of our understanding of innovation, which has to do with discernment rather than creating or expressing new things and new ideas. This mind-set might be shared by the community in the faculty, but it must also be shared with the institutional leaders. Flexibility from the institution gives instructors the autonomy they need to improve teaching. The awareness of faculty members of the need to do more research on better ways to teach in ITE was an important factor in this pilot experience. Along with this, the faculty agenda included the importance of increasing the level of academic exigency in ITE[6].

Another controversial point in contemporary pedagogy is the role of repetition. In our case, however, recovering the use of repetition proved very positive, with the professors repeating their lectures on the one hand, and the students relating and repeating the interwoven ideas they learnt across readings on the other. The first kind of repetition allowed us to assess the quality of their lectures and reading seminars with different students. Repetition also allowed us to change or adapt some things that did not work in the first lectures and try out alternatives in the following sessions. Repetition therefore led to improvement. The short experience of the course showed that the last lecture on the same topic was the best one for both sides, i.e. both professors and students. Therefore, there is a sense of mastering by repeating.

For professors, the recent revolution of co-teaching (mainly at compulsory education levels) was tested at the higher education level. Co-teaching proved to be helpful in several respects: it allowed an exchange of ideas in the design and in implementation phases; it widened the multi-perceptions of the lectures; it gave a chance for one teacher to observe the other so as to help each other improve; and it gave students a chance to hear two different people speak on the same topic with different teaching styles, even if they both share the same epistemological approach.

6 This sharing view has been a catalyst for PIMeFIM teaching innovation projects (FPE_017.18_INN and FPYE_010.19_IMP). See http://pimefim.com.

For the students, one of the most remarkable responses was regarding the barriers they built. The newcomers were very reluctant to read, to study, and to think. In a sense, it is perplexing to think that they were expecting something different than reading, thinking, and studying in a university degree programme. This suggests that in the social imaginary, ITE is not seen as a hard discipline in which students must read and study for many hours in order to succeed. On the contrary, they were expecting to learn how to teach through practice, how to become more efficient through controlling the performance of teaching. Their first reactions towards the invitation to think about the foundations of education, citizenship education, or controversial issues in education were not pleasant. They gave little importance to such matters, or even worse, they considered them a waste of time, the entry price to learning applied didactics and strategies and new methodologies later on.

It is important to note that the ideas mentioned here are not only shared by newcomers in ITE. Many staff and faculty members in ITE have the same approach towards teacher education. Moreover, two questionable ideas predominate in the European university arena as well as in ITE in Europe: (1) ITE must be the school laboratory, and (2) students, by creating, are being innovative. By innovating, they are becoming good teachers. This lack of consensus on the importance of these activities pushes us to be more convinced of them than ever. Furthermore, this also confirms the mistaken idea that something innovative is something we have not seen before, and its corollary: something is good because it is new. That is why our first step here has been to provide a careful theoretical justification for our perspective on this innovative teaching project.

It seems from our results that the "aha moment" arrived several months into the course, when the students suddenly made sense of one idea, and they used it over and over again from that moment on. One noteworthy example of this was the idea of Arendt (1968) and Savater (1997) that education must be conservative because it tries to conserve the good things for the next generation. That "aha moment" provided the scaffolding for participants to build up new ideas and to make sense of their own educational experiences and practices. On the same line, the famous Pygmalion effect (Rosenthal & Jacobson, 1968) was tested again. Difficult readings and demanding lectures became the way to tell

them of the high expectations we had of them and of the importance of their future profession.

Regarding the assessment experience, different inputs collapsed. The students' conservative mood and commitment combined together. Students mainly chose, as menti oned, the multiple-choice exam. Elche and Yubero's (2019) concerns about how student teachers do not feel comfortable when reading and writing were confirmed. This showed a low level of reading skills, given that student teachers usually come from vocational training programmes and not directly from the high school system or A levels. Moreover, the low marks required to enter the ITE programme may be related to this lack of reading and writing skills. Further research should address the academic dimension of ITE programmes focused on the experience presented here.

References

- → Arendt, H. (1968). La crisis en la educación. In: H. Arendt (ed.) (1996), *Entre el Pasado y el Futuro. Ocho ejercicios sobre reflexión política* (pp. 269–301). Barcelona: Península.
- → Bárcena, F. (2019). The intimacy of study as a way of life, *Teoría de la Educación. Revista Interuniversitaria*, *31*(2), 41–67.
- → Battersby, S.L. and Verdi, B. (2015). The culture of professional learning communities and connections to improve teacher efficacy and support student learning, *Arts Education Policy Review*, *116*(1), 22–29.
- → Biesta, G. (2017). *The rediscovery of teaching*. London: Routledge.
- → Burn, K. and Mutton, T. (2015). A review of "research-informed clinical practice" in initial teacher education, *Oxford Review of Education*, *41*(2), 217–233.
- → Cortina, A. (1986). El ámbito de la ética. In: A. Cortina, *Ética mínima* (pp. 21–70). Madrid: Tecnos.
- → Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice?. *European Journal of Teacher Education*, *40*(3), 291–309.
- → Dewey, J. (1916). La educación como función social. In: J. Dewey, *Democracia y educación* (pp. 21–31). Madrid: Morata.
- → Elche, M. and Yubero, S. (2019). La compleja relación de los docentes con la lectura: el comportamiento lector del profesorado de educación infantil y primaria en formación, *Bordón. Revista de Pedagogía*, *71*(1), 31–45.
- → Esteban, F. (2018). *Ética del profesorado*. Barcelona: Herder.

- Esteban, F. (2019). *La universidad light. Un análisis de nuestra formación universitaria*. Barcelona: Paidós.
- Esteban, F. and Escardíbul, O.J. (2020). *En defensa de la clase magistral. The Conversation*, February 17, 2020, https://theconversation.com/en-defensa-de-la-clase-magistral-130350
- European Commission/EACEA/Eurydice (2013). *Key Data on Teachers and School Leaders in Europe. Eurydice Report*. Luxembourg: Publications Office of the European Union.
- European Commission/EACEA/Eurydice (2017). *Support Mechanisms for Evidence-based Policy-Making in Education. Eurydice Report*. Luxembourg: Publications Office of the European Union.
- European Commission/EACEA/Eurydice (2018). *Teaching Careers in Europe: Access, Progression and Support. Eurydice Report*. Luxembourg: Publications Office of the European Union.
- Freire, P. (1970). Capítulo 1. In: P. Freire, *Pedagogía del Oprimido* (pp. 35–72). Madrid: Siglo XXI.
- Gil-Cantero, F. and Sánchez-Rojo, A. (2015). Hacia una Pedagogía universitaria. Los seminarios de lectura en la Universidad. In: F. Gil-Cantero, D. Reyero-García, *Educar en la universidad de hoy. Propuestas para la renovación de la vida universitaria* (pp. 34–49). Madrid: Encuentro.
- Greene, M. (1973). *Teacher as stranger: Educational philosophy for the modern age*. Belmont: Wadsworth Publishing.
- Hökkä, P., Vähäsantanen, K. and Mahlakaarto, S. (2017). Teacher educators' collective professional agency and identity – Transforming marginality to strength, *Teaching and Teacher Education*, *63*, 36–46.
- Ingold, T. (2017). *Anthropology and/as Education*. London: Routledge.
- Kohli, W. (2016). The Dialectical Imagination of Maxine Greene: Social Imagination as Critical Pedagogy, *Education and Culture*, *32*(1), 15–24.
- Larrosa, J. (2019), Vindication of study as educational concept: on learning/studying a language, *Teoría de la Educación. Revista Interuniversitaria*, *31*(2), 131–151.
- López, M. (2019). Study: leisure, melancholy and care. *Teoría de la Educación. Revista Interuniversitaria*, *31*(2), 69–86.
- Manen, M. van (1991). El momento pedagógico. In: M. van Manen, *El tacto en la enseñanza: el significado de la sensibilidad pedagógica* (pp. 54–76). Barcelona: Paidós.

- Manso, J. (ed.) (2019). *La formación inicial del profesorado en España. Análisis de los planes de estudios tras una década desde su implementación*. Madrid: Centro Nacional de Innovación e Investigación Educativa & Ministerio de Educación y Formación Profesional.
- Manzi, A., Martinez, S. and Durmysheva, Y. (2017). Cognitive Correlates of Lecture Note Taking: Handwriting Speed and Attention, *North American Journal of Psychology*, *19*(1), 195–217.
- Muguerza, J. (1986). La obediencia al Derecho y el imperativo de la disidencia (Una intrusión en un debate), *Sistema*, *70*, 27–40.
- Muijs, D. and Reynolds, D. (2017). *Effective teaching: Evidence and practice*. London: Sage Publications.
- Murdoch, I. (1971), La soberanía del bien sobre otros conceptos. In: I. Murdoch (ed.), *La soberanía del bien* (pp. 183–222). Barcelona: Taurus.
- *Normativa de Evaluación Académica Universidad Autónoma de Madrid* (Aprobada en Consejo de Gobierno de 8 de febrero de 2013), https://transparencia.uam.es/wp-content/uploads/2019/05/Normativa-de-evaluaci%C3%B3n-acad%C3%A9mica.pdf
- Ordine, N. (2013*). La utilidad de lo inútil*. Barcelona: Acantilado.
- Popp, J.S. and Goldman, S.R. (2016). Knowledge building in teacher professional learning communities: Focus of meeting matters, *Teaching and Teacher Education*, *59*, 347–359.
- Recalcati, M. (2014). La hora de clase. In: M. Recalcati, *La hora de clase. Por una erótica de la enseñanza* (pp. 93–140). Barcelona: Anagrama.
- Rechia, K. and Cubas, C. (2019). A skholé for teachers: The study as a constitutive dimension of the teacher's work, *Teoría de la Educación. Revista Interuniversitaria*, *31*(2), 109–130.
- Reyero-García, D. (2014). La excelencia docente universitaria. Análisis y propuestas para una mejor evaluación del profesorado universitario, *Educación XX1*, *17*(2), 125–143.
- Rosenthal, R. and Jacobson, L. (1968). Pygmalion in the classroom, *The Urban Review*, *3*(1), 16–20.
- Savater, F. (1997). Educar es universalizar. In: F. Savater (ed.) (2003) *El valor de educar* (pp. 145–168). Barcelona: Ariel.
- Schildermans, H., Vandenabeele, J. and Vlieghe, J. (2019). Study Practices and the creation of a common world. Unearthing the educational dynamics of an urban farming initiative, *Teoría de la Educación. Revista Interuniversitaria*, 31(2), 87–108.

→ Sursock, A. (2015). *Trends 2015: Learning and Teaching in European Universities*. Brussels: European University Association.
→ Thoilliez, B. (2018). El papel de los organismos internacionales (y de sus expertos, asesores y consultores) en la des-democratización de las políticas educativas). In: H. Monarca (ed.), *Calidad de la Educación en Iberoamérica: Discursos, políticas y prácticas* (pp. 45–65). Madrid: Dykinson.
→ Thoilliez, B. (2019). The Craft, Practice, and Possibility of Teaching, *Studies in Philosophy and Education*, *38*(5), 555-562.
→ Thoilliez, B. and Valle, J.M. (2015). Ser profesor en la Universidad hoy. In: F. Gil-Cantero, D. Reyero-García (eds.), *Educar en la universidad de hoy. Propuestas para la renovación de la vida universitaria* (pp. 82–97). Madrid: Encuentro.
→ Touriñán, J. (2019). Studying is an external common activity and we always educate with the activity. An approach from the mesoaxiological perspective, *Teoría de la Educación. Revista Interuniversitaria*, *31*(2), 7–39.
→ Vanassche, E. and Kelchtermans, G. (2015). The state of the art in self--study of teacher education practices: A systematic literature review, *Journal of Curriculum Studies*, *47*(4), 508–528.

Diary of an Action Research
Creating Space for Dialogue, Reflection and Collaboration in Teacher Training

DOI: 10.47050/66515314.108–123

Ildikó Zank

The present chapter explores the goals, experiences and outcomes of a teacher training course embedded in action research, which explored how the attitudes of prospective teachers can be revealed and possibly modified through reflective-co-operative practice. Joint planning, team-teaching, and providing collegial reflections throughout the course were applied in order to enhance teachers' self-efficacy, which may result in a greater commitment to changing practice. By reflecting on the intensive, content-rich and sustained collaboration, we aimed to investigate impacts upon teaching and/or learning processes and outcomes. We found an urgency to focus more on the personal development of prospective teachers by using participative methods, assisting the acquisition of specific transversal competences, such as critical thinking, collective knowledge building, problem--solving, and a co-operative spirit. Ideally, teacher training embraces the development of these new teacher attitudes; therefore, we propose a model that is designed to provide collaborative experiences and an atmosphere of inclusiveness to prospective teachers and to promote the understanding and appreciation of diversity.

Keywords:
teacher training
collaborative practice
action research
professional development

Theoretical framework

Action research is a value-oriented, reflective process designed to inform and influence practice with an emphasis on participation and collaboration, focusing on immediate application rather than the development of theory (Noffke & Somekh, 2010). Action research does not begin with a hypothesis, but a problem, an idea, which is systematically investigated, and in this process researchers gain a better understanding of the research situation as well as themselves, their values, attitudes and behaviour. In this way, action research can also be seen as a form of self-evaluation in a professional context (McNiff, 2002). Action research as a way of "professional learning" opens up new spaces for communication, promotes dialogues and the building of common knowledge constructed from the interactions of different views and reflections of participants. New knowledge is most often generated through dialogues between participants and is ideally based on trust, common values, moral commitment (Málovics, 2014), and a democratic and inclusive approach. Action research fosters collaborative relationships and more egalitarian relations between participants by maintaining an extended view of "expertise" that is based on innovative partnership rather than a hierarchy of different types of knowledge. "The idea of co-producing knowledge recognizes that knowledge is plural and that our research participants provide knowledge, which is turned into propositional knowledge – by the researchers – for dissemination to academic and policy audiences" (Pearce, 2008, p. 16). The outcome of common knowledge construction is unpredictable since the research itself is "guided by the process and context" (Pearce, 2008, p. 18), which is a less comfortable and less controlled methodology than traditional research. However, it serves the aim "to value and support any unexpected and emergent new areas of thinking and practice as well as new relationships" (Pearce, 2008, p. 18). Action research emphasizes collaborative relationships in which all participants can benefit from a supportive environment and a reflective learning process. As a systematic, collaborative and participatory process of inquiry, embedded in teacher training, action research facilitates the creation of space for effective professional development in several ways:

1. We gain a deeper understanding of our own role as professionals by reflecting on our experience, which in turn helps us to make judgements about our own effectiveness.
2. We extend our professional knowledge by framing and reframing experiences, thus obtaining alternative perspectives, making it easier to reflect on emotionally challenging situations.
3. Maintaining a research-oriented mindset contributes to the professionalisation process, reinforcing feelings of self--efficacy and competency.

Research into teacher learning supports professional development that is collegial and collaborative, provides an opportunity to reflect on results with colleagues, helps to understand how students learn, and is intensive and sustained over time, since this environment allows teachers "to raise issues, take risks, and address dilemmas in their own practice. [...] Research on effective professional development also highlights the importance of collaborative and collegial learning environments that help develop communities of practice able to promote school change beyond individual classrooms" (Darling--Hammond & Richardson, 2009, p. 3).

Cycles of action research in teacher education

The action research was carried out in the spring semester of 2019 as part of the teacher education programme at the Institute of Education Sciences, Faculty of Humanities, University of Pécs in a course for second-year students ("Education and School"), during which we created the conditions for co-operative learning and collaborative teaching. The ten thematical units of the course material were adjusted to fit the co-operative principles: personally inclusive parallel interactions, constructive and encouraging interdependence, personal responsibility, individual accountability, equal access and participation, and conscious competence development (Arató & Varga, 2015). Co-operative structures were chosen over the traditional teaching method because they "powerfully assist the acquisition of transversal competencies" such as systemic thinking and collective knowledge building, problem--solving, critical thinking, a co-operative spirit and skills in navigating knowledge networks (Arató, 2015). The bilingual model (the use

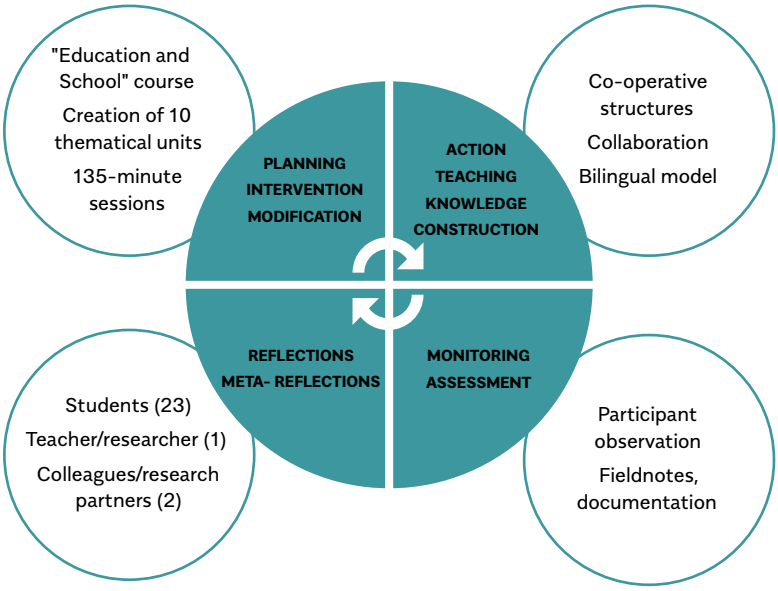
of both Hungarian and English language as the medium) served three purposes:

1. To keep students outside their comfort zone by creating the need to adjust to new conditions, handle challenging situations, and allow themselves new experiences.
2. To facilitate true co-operation among students who worked in constant micro-groups (four members each) where there were inequalities among the members regarding foreign language proficiency. In order to efficiently deal with authentic English input (articles, videos, instructions), team members had to pool their knowledge and share skills and experiences so that they all benefitted from the contribution of the other team members, thus creating positive interdependence within the team.
3. By constructing a foreign language environment, we intended to urge students to use English **in**, **through** and **for** learning while developing cognitive as well as interpersonal and social skills.

The collaboration of three teachers/instructors involved joint planning, team-teaching and participant observation, as well as providing collegial reflections and acting as a "critical friend" (Schuck & Russell, 2005). The process was monitored by means of participant observation (colleagues taking turns teaching and observing), taking fieldnotes and collecting artefacts, such as posters and mind-maps produced by prospective teachers. The 23 students registered on the course were assessed by regular knowledge retainment tests, while the Psychological Immune Competence Inventory (Oláh, 2005) was administered to measure positive personality traits and the possible changes in the psychological immune competencies of student teachers. Participants completed the test at the beginning and at the end of the course, and the data was analysed using Jamovi statistical software. Reflections were not only employed to monitor the process of action research but as a potential means to change the participants' perceptions of themselves and encourage them to try new approaches. The reflections of students were documented in the form of structured written feedback (at the end of each 135-minute session) and turned into a corpus of text to be analysed by applying the Grounded Theory coding process. The teaching/learning process was constantly monitored, and modifications and adjustments were made on the basis

of the feedback from students and the reflections and interpretations made by the participants; thus, the research process became a series of interventions, as visually summarised in Figure 1.

Figure 1. Action research cycles



Partnership and dialogue with students

From the very beginning of the research process, we set out to create a space for dialogue with students to form a sense of partnership. Three strategies were applied in our model with the intention of fostering prospective teachers' involvement in the action research: writing and signing a contract, adopting co-operative learning structures, and giving and receiving mutual meta-reflections. The contract served as a common framework for all the activities taking place in the context of the research (the condition of active participation, the number of absences allowed, the obligation to complete written feedback regularly, as well as the psychological immune competence questionnaire) and briefly described the aims and the content of the "Education and School" course. It also listed the course

requirements and teachers' competencies to be developed. Every single student received an original copy of the contract, which was signed by him/herself and the three teachers, by means of which we ultimately created student ownership. It was our aspiration to create an "alliance" with the students, building on shared values and mutual respect, so that they could take individual responsibility for their actions and decisions to the same degree as the three teachers/instructors of the course.

Co-operative learning for engagement

The second strategy, in line with the philosophy of participatory action research, was the consistent application of co-operative learning structures in the classroom. Based on the literature, it was assumed that engaging students in co-operative learning "promotes a more constructive management of conflicts than competitive or individualistic efforts. It promotes self-acceptance as a competent person, higher-level reasoning and critical thinking competences, more frequent generation of new ideas, higher student achievement and deeper retention" (Arató, 2015, p. 35). Therefore, micro-groups of four students were formed that functioned as "the substantive space of personal and social behaviour" (Arató & Varga, 2015, p. 36). The organisation of the course material and the classroom activities were planned at micro-group level in order to "structurally deconstruct the hierarchical, logocentric and teacher-centred education" (Arató & Varga, 2015, p. 35) and efficiently apply the following principles:

1. **Personally inclusive parallel interactions** put an emphasis on personal involvement in learning, and simultaneous interactions multiply the number of dialogues in class, reflecting the attitude that knowledge is the result of collective creation.
2. **Constructive and encouraging interdependence** means that the focus is on the relationship of the group members (learners) while working towards a common goal. On the other hand, the collective effort of the group is essential for individuals to reach their goal.
3. **Personal responsibility and individual accountability** allow for individual development (personal and social competencies) supported by personalised (peer) feedback. There is a focus

on individual attitudes, behaviours and actions and taking responsibility for them, and learners are assessed by their individual learning outcomes.

4. **Equal access and participation** reflect everybody's democratic right to access shared knowledge as well as making their voices heard regardless of the stage they are at in the learning process.
5. **Conscious competence development** means that co-operative learning not only builds on learners' competences but helps to recognise and articulate learners' own different competences and supports their conscious development (Arató & Varga, 2015; Arató, 2013; Herrmann, 2013).

Since the structural approach of co-operative learning carries paradigmatic features, it "could be understood as a deconstructive paradigm that provides some pragmatic answers to the questions of our everyday educational practice from classroom level to educational system level, focusing on the destruction of hierarchical and anti--democratic structures of learning while setting up co-operative ones" (Arató, 2013, p. 58).

Possible impacts of co-operative learning

Although we maintain that co-operative learning is a crucial and relevant component of action research in teacher training, there is a need to investigate students' engagement and participation from a qualitative aspect. In his study, Herrmann notes that the findings of higher education research into co-operative learning are ambiguous, and he highlights that a "number of studies report co-operative learning to elicit more conscientious effort and stronger commitment to preparation. Nevertheless, the same studies also reflect a number of problems related to co-operative learning such as freeriding, resentment towards being dependent on peers, conflicts arising over varying levels of ambition, and distrust towards peers" (Herrmann, 2013, p. 2). He also cites studies which suggest that students' perception of "proper" university teaching may be incompatible with the principles and practice of co-operative learning; in particular, students with a transmission concept of teaching and learning and "who expect correct answers and comprehensive reviews" may oppose co-operative learning groups (Herrmann, 2013, p. 10).

We encountered some of the difficulties and controversies mentioned above, especially in two areas. In the first place, the principle of "constructive and encouraging interdependence" suffered due to the unwillingness of students to learn from each other and the lack of mutual trust when they were confronted with their own misconceptions and those of their peers. Secondly, equal participation was often challenged by the bilingual approach since students with a (perceived) lower foreign language proficiency refused to deal with authentic English input (refusal of personal responsibility) and "translators" were appointed in some of the micro-groups to manage the task.

We reacted by undertaking interventions in both cases as part of the action research cycles. To handle mistrust in the groups, we introduced regular teambuilding exercises that supported individuals to recognize and understand their own feelings and those of their peers. Emotional intelligence activities, such as "Mood checks" using emotion charts, helped to make students aware of how emotional patterns affect their classroom experience and group productivity. Another activity called "Are we progressing?" not only encouraged students to express frustration in a positive way and to question certain team patterns but also revealed how each person is responsible for their own behaviour and for how the team performs, helping them see that they can impact the quality of interactions and progress.

To handle students' frustration with being confronted with the English language as a medium of instruction and feeling inadequate (some of them actually panicked), we introduced skill-based differentiation. Authentic English texts, which served as inputs for group discussions and for the creation of mind-maps about the effects of multitasking, were tailored to reflect the different levels of language proficiency. The texts themselves were not modified, however the ways of processing the information varied enormously, and the four members of each micro-group could make their own individual decision about which text to choose:

1. Task A (for students claiming very little or no English knowledge) – translation of 10 keywords from the text into Hungarian using online help (e.g. their smartphone),
2. Task B (for students claiming a basic knowledge of English) – match 5 keywords with their definitions (the Hungarian equivalents of some difficult expressions were provided),

3. Task C (for students with an intermediate level of English) – find 5 keywords in the text that are related to the title of the text, or
4. Task D (for students with a higher proficiency of English, e.g. language major) – summarise the text in 4 short sentences.

Students doing the same task formed "expert groups" in order to work on their special assignment with the aim of reaching a common solution. Upon returning to their "home groups", all experts reported the information learnt and were able to act as a source for the other group members, hence fulfilling the principle of equal access and participation. In the context of action research, we understand our roles as facilitators who "should structure and re-structure the learning process" (Arató, 2013, p. 76), so it was our intention to not only provide a practical example to prospective teachers but also create the conditions for them to experience the need to take responsibility and to work on a possible resolution. This approach reflects our belief that knowledge is a social construction to be developed by a learning community, and that in educational practice the focus should be on the learning process itself with the main goal being achieving autonomous learning (Arató, 2013).

Promotion of reflective practice

The third strategy, named "mutual meta-reflections", is closely related to the ongoing iterative cycles of action research (planning, acting, observing and reflecting), which again positioned students as contributors to their own knowledge by offering them the possibility to reflect regularly on the content and the methodology of the course as well as on their experiences and feelings, their perceived roles and how their own learning process evolved. We define reflection as "a deliberate and conscientious process that employs a person's cognitive, emotional and somatic capacities to mindfully contemplate on past, present or future actions" (Harvey et al., 2016, p. 11) and go along with the view that emotions that may arise during the students' experience contribute to the learning process (Harvey et al., 2016). Throughout the cycles of the action research, we encouraged a structured and systematic reflective practice and based the interventions (modification of content and/or methodology) on students' written feedback. We asked them to complete the following 12 sentences at the end of each session anonymously:

1. I liked/did not like this topic because...
2. What I learnt today...
3. My most important experience today...
4. These skills of mine were developed today...
5. Looking back, this is what I would do differently ...
6. This is what I questioned...
7. I need to make progress in...
8. I have made the greatest progress in...
9. The activity/role which made me feel good...
10. The activity/role which made me feel bad/embarrassed...
11. The most important thing I have received from the group/learnt from others...
12. The most important thing I have taught others...

Individual reflections – providing us with an insight of a unique and personal nature – were assessed between sessions and taken into consideration in planning interventions for the next class. By contemplating students' feedback in the light of participant observation and researchers' fieldnotes about the same class, we were able to create new forms of understanding about our practice. At the end of the course, the written feedback of all students was recorded electronically and turned into a corpus of text (12 sentences x 10 occasions x 23 students) to be analysed by applying the Grounded Theory coding process. The data is going to be used to map the thinking patterns of prospective teachers, expectedly revealing levels of reflections and attitudes towards their own professional development.

In contrast to the systematically written reflections, meta-reflections occurred orally during the teaching/learning process as part of a joint and more conscious and deliberate effort to make sense of the process itself. Meta-reflections often happened as a "time-out" in the middle of the teaching-learning process, when students sought to develop an understanding of what was happening to them, framing and reframing their reactions to their experiences and interpreting the reflections of the teachers/researchers. Instances of meta-reflections provide good examples of the "communicative spaces" in which dialogue can flourish (Reason & Bradbury, 2008). It was in these dialogues that student teachers became true, emancipated partners in the action research, shaping the understanding of our professional roles as teacher educators.

Collaboration as an innovative partnership in teacher education

It requires time, effort and the opportunity to develop trust to create and sustain a space for communication within an action research project in which participants collaborate in order to gain a deeper understanding of teaching and learning processes, student attitudes and their own effectiveness. Platteel et al. suggest that two interrelated conditions can be distinguished that are essential to "the forming and sustaining of a collaborative action research partnership: (1) **Contextual conditions** – a supportive context for the research project needs to be created" (e.g. workshops, meetings, inspiring readings), and "(2) **Communicative conditions** (in speech or writing) – at least as important as contextual conditions is the willingness of participants to engage in free and open communication and dialogue" (2010, pp. 432–433).

As to the contextual conditions, we established ourselves as an academic research group focusing on gaining a better understanding and improvement of our own practices in teacher education while using the data for theory/model building. We greatly benefitted from our different professional backgrounds and expertise in three related fields: (1) teacher research/pedeutology, (2) special education needs/learning disabilities, and (3) language learning and teaching/linguistics. We integrated our expertise in the joint planning of the course as well as team-teaching, building on each other's ideas in the teaching-learning process either in a planned way or spontaneously. The ten thematical units (135 minutes each) for the "Education and School" course were planned in a detailed manner, making use of a digital "planning board" with the following headings:

AIM Teaching/ learning	STEPS Realisation/ implementation	TIMING (minutes)	Equipment needs	Teacher activity	LEARNING Structures	Reflections

For each 135-minute class, three sections of complementary professional content were planned, consciously building on each other's expertise. For instance, the third session of the course started with students discovering parenting styles (creating and presenting mind-maps based on co-operative learning), followed by an English block about relevant aspects of IQ and EQ (making use of authentic

texts and videos as input for the micro-groups), and finally they worked on the concept of "attitude" and learnt to differentiate between naive and scientific approaches. During the whole session, the three teachers kept changing their roles by teaching, assisting and observing alternately.

However, action research is context-bound and strongly rooted in practice, and we argue that a constant dialogue of theory and practice evolves throughout the research process. The practitioners involved in action research work in and reflect on a complex and dynamic environment while the exploration of their personal philosophy, beliefs and attitudes take place. Problems, questions and interventions that occur call for the inclusion of new theoretical components that may help to make sense of our experience and assist in making relevant decisions.

Critical friendship and self-study

The "communicative condition" of a collaborative action research partnership specifies the criteria for a free and open dialogue "through which the truth can be revealed" (Platteel et al., 2010, p. 433) and the readiness of the participants to engage in this "communicative action". One of the most helpful partners in assessing one's own practice in communicative actions is a critical friend who "acts as a sounding board, asks challenging questions, supports reframing of events, and joins in the professional learning experience" (Schuck & Russell, 2005, p. 2). A critical friend not only provides support and challenges throughout the research (by giving critical evaluations that are constructive and professional) but also helps the researcher to adopt a more independent stance towards his/her own action research. The role of critical friends is extremely valuable (in our case, it was my two colleagues/co-teachers/collaborative research partners) in all phases of the action research project. As a teacher/action researcher, I was relying on them to provide honest and impartial feedback during our 60-minute weekly meetings that were held immediately after the classes. Some concerns and difficulties may be alleviated by involving critical friends in the process, such as the lack of distance from the research situation, the difficulty with becoming detached and the conflicting roles of teacher versus researcher (Anagnou & Fragoulis, 2014). Critical friends also play a major role in supporting self-study practice, which is an "inherently critical activity that seeks to challenge one's fundamental assumptions about personal professional practice" (Schuck & Russell, 2005, p. 12). During

the practice of self-study, one needs to get rid of defensive routines and adopt a mode of communication which reflects strength (feeling vulnerable while encouraging inquiry), honesty (encourage yourself and others to say what you fear to say) and integrity (advocate your principles, values and beliefs) (Mandl, 2007). During my meetings with my colleagues/ collaborative research partners, I had the opportunity to immediately articulate my introspection and soul-searching personal thoughts on my role as a teacher, which were either confirmed or questioned by them and, acting as critical friends, they described the behaviour they observed during the teaching process. It is important to see that "those who engage in self-study are critical of themselves and their roles as researchers and teacher educators. We believe that this self-reflexive form of inquiry can lead to fundamental changes in our selves. For example, it could lead to a reframing of one's educational philosophy, or it can lead to a change in one's stance towards practice. It is important to remember that self--study is not a study of the self in isolation, but rather a study of one's self in relation to other people" (Feldman et al., 2007, p. 968).

Insights and preliminary conclusions

A metacognitive approach to action research

Action research does not stand for the ideas of objectivity and value--free researchers – as rooted in the tradition of positivist science – but "emphasizes the need to understand people's subjective experience and the meanings they give it in context" (Pearce, 2008, p. 8). Action research always offers a multiplicity of viewpoints and "seeks differences, contradictions, possibilities and questions as ways of opening up new avenues of action" (Whitehead, 2017, p. 15). Taking Kurt Lewin's influential concept of action research, we maintain that "diagnostic activities such as observations, interviews, and questionnaires are already powerful interventions and the processes of learning about a system and changing that system are, in fact, one and the same" (Mandl, 2007, p. 35). A guiding principle of action research is the conviction that "valid science must engage with human beings as persons" (Pearce, 2008, p. 10) and not as a "subject", and thus a collaborative relationship and the idea of co-producing knowledge is accepted and advocated.

Towards professional development – teacher learning

Most competency-based approaches (integrating knowledge, skills and attitudes) in education are often rooted in the deficit model instead of referring to a teacher's core qualities: trust, care, kindness, sensitivity, courage, commitment, flexibility, honesty, fairness, humour, etc. (Korthagen, 2017, p. 396). Since we might not be able to perceive the quality of teachers in a standardised list, Korthagen proposes an integrative view of the "effective" teacher and illustrates his vision with the onion model. He describes the effective teacher as someone who "impacts her environment on the basis of a certain coherence between her core qualities, ideals, sense of identity, beliefs, competencies, behaviour and the characteristics of the environment, e.g. a classroom or school" (Korthagen, 2017, p. 397). A variety of studies describe the learning processes of teachers that concentrate on reframing limited and negative self-concepts and beliefs about educational situations, which can be an emotional process, while successful coaching leads to "increased feelings of autonomy, more self-efficacy" (Korthagen, 2017, p. 398). He points out that teacher learning is multi-level, multi-dimensional, often unconscious and above all value-based, whereas learning communities are the true facilitators of professional development. Teacher learning as described above parallels the learning process of collaborative action research where shared common experiences help participants frame and reframe incidents, experiences and events to gain alternative perspectives. Professional knowledge is developed through effective reflective practice which "offers a way of interpreting problematic situations that dramatically diminishes the need to rationalise one's behaviour" (Loughran, 2002, p. 13).

The professional development facilitated by our participation in collaborative action research has brought about changes in several dimensions of teacher well-being (as proposed by an upcoming OECD project on "Supporting Teachers' Professional Learning and Well-being for Quality Teaching"), namely:

1. Growing self-efficacy in classroom management, instructions, and student engagement (cognitive well-being).
2. Commitment to change, feelings of trust, and higher job satisfaction (psychological well-being).
3. Improvement in workplace relationships and teacher co-operation (social well-being) (Schleicher, 2018).

Collaborative action research not only offers a strategy for change and professional development but has the potential to improve teachers' self-efficacy (teachers' beliefs in their ability to perform), which is closely linked to teachers' well-being and strongly influences their academic achievement and behaviour. A research-oriented mindset and systematic reflections on experiences, supported by a learning community, can empower individuals, prevent burn out and may positively influence teaching quality and job satisfaction. Thus, we fully agree and support the suggestion that "universities must include action research as a core unit in teacher preparation programmes" as it holds significant value to improving practice (Hine, 2013, p. 161).

References

- Anagnou, E. and Fragoulis, I. (2014). The Contribution of Mentoring and Action Research to Teachers' Professional Development in the Context of Informal Learning, *Review of European Studies*, *6*(1), 133–142.
- Arató, F. (2013). Towards a Complex Model of Cooperative Learning, *Da Investigação às Práticas*, *3*(1), 57–79
- Arató, F. (2015). How does co-operative learning contribute to the prevention of discrimination and violence in schools?. In: P. Mompoint-Gaillard, I. Lázár (eds.), *TASKs for democracy – 60 activities to learn and assess transversal attitudes, skills and knowledge*. Strasbourg: Council of Europe Publishing.
- Arató, F. and Varga, A. (2015). *A Handbook for learning together – an introduction to co-operative learning*, trans. R. Märcz, B. Bakonyi. Pécs: University of Pécs.
- Darling-Hammond, L. and Richardson, N. (2009). Teacher Learning: What matters?, *Educational Leadership*, *66*(5), 46–53.
- Feldman, A., Paugh, P. and Mills, G. (2007). Self-study through action research. In: J.J. Loughran, M.L. Hamilton, V.K. LaBoskey, T. Russell (eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 943–979). Dordrecht: Springer.
- Harvey, M., Coulson, D. and McMaugh, A. (2016). Towards a theory of the Ecology of Reflection: Reflective practice for experiential learning in higher education, *Journal of University Teaching & Learning Practice*, *13*(2), 2–22.
- Herrmann, K.J (2013). The impact of cooperative learning on student engagement: Results from an intervention, *Active Learning in Higher Education*, *14*(3), 175–187.
- Hine, G.S.C. (2013). The importance of action research in teacher education programs, *Western Australia's TL Forum. Issues in Educational Research*, *23*(2), 151–163.

→ Korthagen, F. (2017), Inconvenient truths about teacher learning: towards professional development 3.0, *Teachers and Teaching: Theory and Practice*, *23*(4), 387–405.
→ Loughran, J.J. (2002). Effective Reflective Practice: In Search of Meaning in Learning about Teaching, *Journal of Teacher Education*, *53*(1), 33–43.
→ Mandl, Ch. (2007). Evaluating Evaluations or The Case for Action Research, *Platform Forschungs- und Technologieevaluierung*, *30*, 29–39.
→ Málovics, Gy., Mihók, B., Pataki, Gy., Szentistványi, I., Roboz, Á., Balázs, B. and Nyakas, Sz. (2014). Részvételi akciókutatással a társadalmi kirekesztés ellen: egy szegedi példa tanulságai, *Tér és Társadalom*, *28*(3), 66–84.
→ McNiff, J. and Whitehead, J. (2002). *Action Research: Principles and Practice*. London: Routledge.
→ Noffke, S. and Somekh, B. (2010). Action Research. In: A. Campbell, S. Groundwater-Smith, *Action Research in Education* (pp. 289-301). London: Sage Publications.
→ Oláh, A. (2005). *Anxiety, coping, and flow: Empirical studies in interactional perspective*. Budapest: Treffort Press.
→ Reason, P. and Bradbury, H. (eds.) (2008). *The SAGE Handbook of Action Research. Participative Inquiry and Practice*. Los Angeles–London–New Delhi–Singapore: Sage Publications.
→ Pearce, J. (2008). "We Make Progress Because We are Lost": Critical Reflections on Co Producing Knowledge as a Methodology for Researching Non-governmental Public Action. NCRM Research Methods Festival 2008, 30th June-3rd July 2008. St. Catherine's College.
→ Platteel, T., Hulshof, H., Ponte, P., Driel, J. van and Verloop, N. (2010). Forming a collaborative action research partnership, *Educational Action Research*, *18*(4), 429–451.
→ Schuck, S. and Russell, T. (2005). Self-Study, Critical Friendship, and the Complexities of Teacher Education, *Studying Teacher Education*, *1*(2), 107–121.
→ Schleicher, A. (2018). *Valuing our Teachers and Raising their Status: How Communities Can Help, International Summit on the Teaching Profession*. Paris: Organisation for Economic Co-operation and Development Publishing.
→ Whitehead, J. (2017). Practice and Theory in Action Research: Living-Theories as Frameworks for Action. In: L. Rowell, C. Bruce, J. Shosh, M. Riel (eds.), *The Palgrave International Handbook of Action Researc*h (pp. 387–401). New York: Palgrave Macmillan.

Teachers' Development Standards in the School of Education, Warsaw
A Case Study

DOI: 10.47050/66515314.124–144

Kinga Białek

The present article describes the fundamentals of the Teachers' Development Standards (TDS) designed in the School of Education, Warsaw. It provides an analysis of the current context of teacher education in Poland (and available methods of professional development) as well as a brief outlook on the global challenges education is facing concerning economic, social and environmental issues. In a changing world, professional teachers are needed all the more. The article then presents the basic principles behind the Standards and the evaluation concept introduced in the School of Education. In the document presented in the article, the following four areas of professional development are mentioned: establishing a learning environment, knowledge about the discipline and teaching thereof, planning the didactic process, and managing the didactic process, each followed with example indexes. The experiences of the School of Education with the TDS can thus be used by other institutions. The article finally presents the conclusions drawn in the internal evaluation process.

Keywords:
teacher development standards
teacher's evaluation
reflective teaching

Introduction: The world's call for high-quality teachers

Education is one of the priority fields for both national and international policy. At the beginning of the third decade of the 21st century, we tend to face more and more challenges to which education might be an answer. Most of the challenges come from the ever-changing and fluid global situation. The newest research from the fields of social studies, economics and politics indicates that some previously defined global problems remain unsolved and still tend to endanger the global population. In 2019 the World Economic Forum published a report on the most important risks facing our world. The authors briefly described such tendencies as the ever-deepening climate crisis, causing large-scale forced migrations and social instability as a result. Consequently, the modern world needs to be prepared for a deep political crisis caused by both political populists and information handlers. World institutions need to adapt their policies not only to avoid further dangers but also to minimize the consequences of the already happening crises. As stated in the report: "As the outlines of the next geopolitical era start to emerge, there is still uncertainty about where the distribution of power will settle and from where influence will emanate, but a snap back to the old order appears unlikely. If stakeholders attempt to bide their time, waiting for the old system to return, they will be ill-prepared for what lies ahead and may miss the point at which key challenges – – economic, societal, technological or environmental – can be addressed. Instead, longstanding institutions must adapt to the present and be upgraded or reimagined for the future" (World Economic Forum, 2020, p. 15).

The future seems more and more complicated. We should expect economic consequences (limited access to money and assets and inflation), as well as socio-political difficulties. The latter can manifest in a lack of trust towards governments and the ineffectiveness of political countermeasures. Democratic institutions are constantly losing their first and most important ally – the democratic media. A bigger and bigger part of the global community uses information distributed not by high-quality media but populists or internet "authors", which often leads them to believe "alternative facts", post-truths or even literally fake news. Thus, we have become more vulnerable to manipulation and lies.

On the other hand, the global population is suffering from deepening economic inequalities. This has its obvious impact not only on the world's economy but also in other, less obvious areas. The authors of two important works, Kate Pickett and Richard Wilkinson in their *The Spirit Level: Why More Equal Societies Almost Always Do Better* (2010) and Anthony B. Atkinson in his *Inequality: What Can Be Done?* (2015), argue that income inequalities have a strong influence on access to basic resources and rights, guaranteed in most developed societies, such as access to health care, civic participation and high-quality education. The latter is the most important realisation to be considered in designing teacher training programmes. To improve the public education system, institutions need to focus on the most crucial elements of professional preparation.

Students are the main focus of modern didactics. Their strengths and abilities as well as areas for improvement help teachers in developing the best teaching plans that address all the diagnosed needs. Now, it is important to bring up the research results on the role of teachers in the learning process and their impact on the learning outcomes of the students. John Hattie, in his large-scale meta-analysis *Visible Learning for Teachers,* creates a portrait of a teacher-expert whose actions help students achieve educational success (Hattie, 2012). This portrait is based on five basic principles: teachers are able to recognise the main ideas of the taught subject, they can create a learning--friendly environment for their students, they monitor learning and give feedback, they are convinced that all their students can fulfill the success criteria, and they have a real impact on profound and superficial learning outcomes. This description is accompanied by a list of eight mind frames that help students and teachers to develop:

1. My fundamental task is to evaluate the effect of my teaching on students' learning and achievement.
2. The success and failure of my students' learning is about what I do or do not do. I am a change agent.
3. I want to talk more about learning than teaching.
4. Assessment is about my impact.
5. I teach through dialogue not monologue.
6. I enjoy the challenge and never retreat to "doing my best".
7. It is my role to develop positive relationships in class and staffrooms.
8. I inform all about the language of learning (ibidem, p. 159).

Hattie's concept is based on one important assumption: that effective teaching is a combination of profound content knowledge, pedagogical knowledge and management, and these three components are inseparable. A similar approach can be seen in Robert J. Marzano's *The Art and Science of Teaching* (2007). In this study, the author defines the following three elements of effective teaching: using effective teaching strategies, effective classroom management and creating effective teaching curricula. In the first chapter of his book, Marzano states: "In the last decade of the 20th century, the picture of what constitutes an effective school became much clearer. Among elements such as a well-articulated curriculum and a safe and orderly environment, the one factor that surfaced as the single most influential component of an effective school is the individual teachers within that school" (Marzano, 2007, p. 1).

It is not just academics who have recognised the role of teachers as a factor of global change. It is also mentioned in the ILO/UNESCO *Recommendation concerning the Status of Teachers* from 1966: "Education, from the earliest school years, should be directed to the all-round development of the human personality and to the spiritual, moral, social, cultural and economic progress of the community, as well as to the inculcation of deep respect for human rights and fundamental freedoms; within the framework of these values the utmost importance should be attached to the contribution to be made by education to peace and to understanding, tolerance and friendship among all nations and among racial or religious groups" (ILO/UNESCO, 2016, p. 22).

After 54 years, the goals described in the document have not changed that much. Even highly developed communities face difficulties in these areas. This means that schooling systems should be far more responsible for the future development of societies than we realize and that part of this responsibility will be placed on teachers. On the other hand, teachers need to deal with the educational goals defined by the state in the common core standards and requirements for an external examination system. Deep knowledge and experience are factors educators can use to maintain a balance between these two tendencies and, in result, to create an environment in which students can grow and thrive. Creating an effective learning environment that addresses the challenges defined by modern world

problems would not be possible without supporting teachers in their professional development.

There are a few areas in which we can define effective and professional teachers. The first one is a set of moral and personal attitudes towards students and teaching. Teachers need to understand their role in the public and ethical development of young people and also their responsibilities towards future societies. Proper high--quality education might be an answer to the above-mentioned global challenges, but it requires effective academic teacher training in pedagogy, psychology, pedagogical content knowledge, content knowledge and classroom management. Teachers educated in that way focus not only on the content of their lesson but also on the soft skills and attitudes they teach their students, such as empathy and eagerness to share one's passions. They also need to teach cognitive skills, like cognitive flexibility, tolerance towards ambiguity or openness to experiments. It is also absolutely necessary for an educator to be able to reflect on their teaching philosophy or values they present every day in their classroom.

There is also one more perspective that needs to be taken into consideration when writing about a proper teacher preparation process – the great and not always openly stated purpose, understood as the set of socially important values. David T. Hansen in his article *Values and purpose in teacher education* writes that: "Among the most prominent values influencing the scope and structure of teacher education programmes today are preparation for work and life, academic learning, human development and social justice, with the latter cast in some cases as respect for cultural diversity or multicultural education, and in others as civic or democratic education" (Hansen, 2008, p. 12).

For the author, there is a distinction between the purpose and the function in teachers' education, the latter being more of a technical term: "Function denotes maintenance, purpose the possibility of transformation" (ibidem, p. 23), and it is the personal challenge for every educator to take part in a never-ending debate on the main and most important values of education.

A modern teacher is then a professional who understands their role and presents positive attitudes and virtues as well as a consciousness of that role.

Teachers' Development Standards in the School of Education, Warsaw – A Case Study

Teachers' standards – theory and practice

In the public debate, the sentence "Teaching is a profession" will not be considered questionable. It is even safe to say that it would not be considered as such within educational circles. Although this sentence seems obvious, it has raised a lot of controversy within the professional debate. In the volume *Pedagogical Knowledge and the Changing Nature of the Teaching Profession* (Guerriero, 2017), the authors present a few approaches to the problem. All of them argue that teaching cannot be treated as a profession, but as a semi-profession: "Howsam et al. (1985) classify teaching as a semi-profession because it lacks one of the main identifying characteristics of a full profession: professional expertise. They argue that teaching lacks a common body of knowledge, practices and skills that constitute the basis for professional expertise and decision-making. This is a consequence of the practice of teaching not being founded upon validated principles and theories. [...] Like Howsam et al., Hoyle considers decision-making to be an important characteristic of professions because professions require the practice of skills in situations that are not routine and where professional judgement, based on a systematised body of knowledge, will need to be exercised when encountering new problems" (Guerriero & Deligiannidi, 2017, p. 21).

The authors then discuss the problem of the independence and self--governance (as basic characteristics of professionalisation) of teachers being limited by a broad set of factors, both local and national.

Having stated this, we need to consider teaching once again as a profession, not in an academic discourse, but in a very practical approach, based on the experiences of thousands of Polish teachers. The already-quoted ILO/UNESCO recommendation gives us a clear statement on regarding teaching as such: "Teaching should be regarded as a profession: it is a form of public service which requires of teachers expert knowledge and specialised skills, acquired and maintained through rigorous and continuing study; it calls also for a sense of personal and corporate responsibility for the education and welfare of the pupils in their charge" (ILO/UNESCO, 2016, p. 22).

There are a few important elements of this definition that should be further considered, especially taking into account the Polish context. First of all, the authors mention the important role of teachers as public servants in maintaining the continuity and coherence of the state's educational policy. Teachers are, in a way, the first and most important actors in implementing all the regulations required by law, such as realising the core curriculum or acts of parliament regulating the organisation of the schooling system. It has consequences for teachers themselves, and they should be fully aware of the set of responsibilities they have before the state. Furthermore, entering the teaching profession is preceded by a prolonged period of university training in a specific academic domain (in Poland, it is required for a teacher to have a Master's degree) as well as teacher training. Educators are also expected to be constantly developing their skills in different domains, and they enter additional professional courses in methods or classroom management.

The general outline of teacher education in Poland is given by the decree issued by the Ministry of Science and Higher Education. The decree states all the compulsory elements of teaching in the preparatory programmes, such as elements of pedagogy, psychology or content knowledge (Ministry of Science and Higher Education, 2019). Although the document is meant to cover the entirety of future teachers' preparatory programmes, it is too general to be used as a proper guide for designing academic programmes. Therefore, every institution providing a teacher preparatory programme needs to design its own subjects' syllabi to meet the Ministry's requirements. It can be both a blessing and a curse – academics still have a lot of freedom to decide on a programme, but it may also lead to disproportionality among various programmes and, in consequence, teachers' readiness to work and practice.

Consequently, another kind of standard is needed not only to maintain a comparable **content** of teacher preparatory programmes but also to achieve the highest quality of teachers' **performance** in their practice. In general, ready-to-use standards within the educational praxis should focus on three main areas, as described in the working paper *Learning Standards, Teaching Standards and Standards for School Principals: A Comparative Study* issued by the CEPPE, Chile: "Standards can be understood as definitions of what someone should

know and be able to do to be considered competent in a particular (professional or educational) domain. Standards can be used to describe and communicate what is most worthy or desirable to achieve, what counts as quality learning or as good practice. Standards can also be used as measures or benchmarks, and, thus, as a tool for decision-making, indicating the distance between actual performance and the minimum level of performance required to be considered competent" (CEPPE, 2014, p. 14).

In other words, standards contain the informative **description** of the valued good practice, with references to the values and philosophy hidden behind practices (so-called **content standards**), and the proposed ways of the **assessment** of one's performance as well as their **criteria of measurement** (so-called **performance standards**), as was clearly presented in the report *Standards for Teaching: Theoretical Underpinning and Applications* by Elisabeth Kleinhenz and Lawrence Ingvarson (2007).

In many educational systems, standards for teachers have been successfully introduced, and each system produces its own list of professional standards for teachers. They serve different kinds of purposes: from accrediting teacher preparation programmes' graduates, through licensing, to an evaluation of the advanced teachers' practice. All these situations require fully-informed considerations of the candidate's performance in which standards are the best tool not only to assess teachers but also to give clear characteristics of a teacher-friendly environment. Kleinhenz and Ingvarson write: "Professional standards provide a basis for developing more valid systems for teacher accountability and performance. Standards also highlight conditions, such as opportunities for collegial interaction, that need to be in place for teachers to teach effectively" (Kleinhenz & Ingvarson, 2007, p. 9).

In some systems, like in Poland, teachers are required to attain certain stages of career development in which the evaluation of their performance could or should be conducted. According to the corresponding Polish Act (usually called the *Teacher's Charter*), this assessment is based on the ten criteria listed below:

1. Reliability of the implementation of tasks related to the entrusted position and the basic functions of the school: didactic,

educational and tutelary, including tasks related to ensuring the safety of students during classes organised by the school.
2. Supporting every student in their development.
3. Striving for full personal development.
4. Professional development in accordance with the needs of the school.
5. Educating and raising young people in love of their homeland, in respect of the Constitution of the Republic of Poland, and in an atmosphere of freedom of conscience and respect for every human being.
6. Caring for students' moral and civic attitudes in accordance with the idea of democracy, peace and friendship between people of different nations, races and worldviews.
7. Conducting didactic, educational and tutelary classes conducted directly with or on behalf of pupils.
8. Implementation of other activities and activities resulting from the school's statutory tasks, including care and educational activities, taking into account the needs and interests of students.
9. Conducting classes and activities related to preparing for classes, self-education and professional development.
10. Being guided by the well-being of students, concern for their health, moral and civic attitude, and respecting the student's personal dignity (reconstructed according to the Teacher's Charter Act, section 2, art. 6, Educational Law Act, art. 5).

Teachers' performances can be assessed according to these criteria and be evaluated on a four-grade scale: outstanding, very good, good, or negative.

The situation described above leads to some very serious and profound consequences. First of all, the above-mentioned criteria are too general to be used as everyday references for teachers. The list does not state clearly what kind of practice could be graded as outstanding or as negative. It is all based on the subjective approach of every teacher and could be, in this way, a source of misunderstanding and misconceptions. This remark is also applicable to the assessing commission – it is easy to imagine situations where a final grade is not based on the thorough evaluation of the candidate's practice but

on the very subjective attitude towards them. In our opinion, the current situation does not meet expectations with regard to the above--mentioned understanding of standards.

In this way, standards need to be designed and implemented in the Polish context to be a guide for teacher candidates and experienced educators who wish to develop their practice.

The School of Education as a complex approach towards teacher training

The School of Education of the Polish-American Freedom Foundation and the University of Warsaw (SE) was opened for students in the academic year 2016/2017. The programme is meant for graduates of universities who want to obtain a teacher preparation programme diploma as well as for in-service teachers who want to further develop their skills and learn new educational solutions. On completion, students receive a post-graduate diploma which gives them the right to become practicing teachers in all types of schools and institutions. During the first two years, the programme was addressed to Polish philologists and mathematicians only, but recently it was also opened to future biology and history/civic education teachers. The programme was created thanks to the co-operation of the Polish-American Freedom Foundation, the University of Warsaw, the Foundation for Quality Education, the Centre for Citizenship Education and the support of experts from the renowned Teachers College at Columbia University.

The novelty of this programme (the first of its kind in Poland) lies in combining full-time studies with intense practices. Students are able to deepen their academic knowledge and implement it in school practice in clinical schools participating in the support programme realised in the SE. These are over 30 elementary, middle and high schools in Warsaw and surrounding areas in which students' get to know the full extent of a teacher's job – participating in faculty meetings, parent-teacher conferences as well as teaching and co-teaching classes. The schedule has been synchronised with the school year. In every clinical school, students are able to observe and consult mentors – teachers working in a school. In the afternoons, students participate in academic classes at the SE. The SE provides a professional preparatory programme in the fields of pedagogy, didactics, psychology, the development of leadership and creative skills.

The SE philosophy is strongly based on synergy between the praxis and theory of teaching. This bond is visible in many fields: SE professors have practical teaching experience, represent various academic institutions, and have the support of leading American and European specialists in the area of teacher training. In this way, they can present different approaches to teaching methods and content. The faculty staff are people actively involved in education who can apply different perspectives into their training of teachers: as practicing educators and academics.

The practical aspect of this programme is also realised in applying effective teaching methods to teaching students. SE professors model techniques and strategies while teaching students. In that way, they enforce meta-reflection in future teachers, who are then able to apply new solutions in a well-informed and conscious way. Academic classes are held in small groups, with a strong emphasis on discussion and systematic reflection on learning progress.

In the SE the idea of individual support to every student is realised in many ways. For example, the core concept of supporting future teachers in their development is tutoring: students are under the substantive care of SE tutors. The tutorial is an important element of teacher education. Tutors are experienced in didactic work, they understand the challenges faced by future teachers, and they know how to help them organise their own experiences and learn through them. Tutors, together with learners, evaluate their work and help them set development goals. The tutorial at the SE also has a different, less obvious goal. This is to instill in future teachers a willingness to work with such methods with their students at school. The tutorial at the SE has an important place in the weekly schedule of students. Tutorial meetings usually take place every two weeks, but their frequency may change due to the needs of students. The tutorial takes about 45–60 minutes. Importantly, the tutorial is a process planned for the entire academic year; it cannot just be a response to the current problems of students. This does not mean, however, that this plan is rigid and unchanging, yet we ensure that work on the most current issues in student practice does not limit the possibility of referring to the whole process.

During the whole development process, tutors support students in improving their own professional craft. This is served by taking care of the quality and continuity of the process, building self-awareness

and supporting self-reflection as well as meta-reflection about learning. Tutors and tutees share the experience gained while working at school, conduct discussions (substantive conversations) regarding issues related to teaching, planning or conducting the educational process, and enter the role of expert teachers. During the academic year, tutors evaluate student activities based on observing lessons, analysing the lesson plans, discussing recordings from the lesson, and discussing teaching practice.

Another aspect of the specific SE approach to teaching is creating critically reflective teaching practices. Stephen D. Brookfield, in his book *Becoming a Critically Reflective Teacher*, describes this practice in the following way: "critically reflective teaching happens when we build into our practice the habit of constantly trying to identify, and check, the assumptions that inform our actions as teachers. The chief reason for doing this is to help us take more informed actions so that when we do something that's intended to help students learn it actually has that effect" (Brookfield, 2017, pp. 4–5). This is the main idea behind organising the learning – practice – reflection – practice cycle. Students acquire theoretical knowledge of the methods and strategies and ideally have the opportunity to practice them in clinical schools. Then, during the classes, they have a chance to reflect on their actions. Integrative Seminars are classes specifically designed to discuss and evaluate weekly practices and are held every Friday.

All of the learning experiences of the students are eventually collected in a teacher's portfolio, this being the basic form of assessing learning. It is a means of reporting the most important aspects of education, challenges and ways to overcome them through participating in the SE programme. Students incorporate in their portfolios their lesson scenarios and pupils' works with comments and feedback, as well as personal notes about learning. The portfolio reflects the individual development path of every student.

To fully realize all the goals of the programme, Teachers' Development Standards were designed. In the Polish tradition, we have not had this kind of document before, so the Standards had to be designed from scratch, based on international inspirations.

The sources of Standards, good practices and inspirations

Describing good teaching is not easy – there has always been a heated debate over values that should define the teachers' ethos. As one

of the jobs considered a calling, teaching has always been seen as fulfilling a mission rather than simply working. But still, every future educator needs to know the basic principles that make their job a profession. It is one of the key factors essential for learning anything, especially learning to teach. Over four years have now passed since the teaching staff of the SE started to design a document shaping the vision of the teaching professional – the graduate of our programme (the leading authors being Maria Samborska, Magdalena Swat-Pawlicka and Kinga Białek). Thanks to the intensive work of the team and constant modifications, this complex and satisfying tool that helps students to develop as future teachers can now be used under the name of Teachers' Development Standards (TDS). The basic principles underlying the TDS come from the years of experience of the staff as educators and teachers' tutors. It starts with the belief that the most important element of teaching lies within creating a good, supportive learning environment for each and every student in the classroom. This is followed by trust in the teachers' knowledge and expertise within the subject area and pedagogical content knowledge, careful and purposeful planning as well as the ability to manage the learning process. All of those are included in our TDS and reflected in the syllabi of academic subjects taught in the School of Education.

But they are also based on experiences gathered internationally, like from the Teachers College at Columbia University, the Graduate School of Education at the University of California, Berkeley or Indiana University Bloomington's School of Education. The first and very important inspirations were standards used in New York schools, reported in Charlotte Danielson's *The Framework for Teaching* (2013). In this tool, teaching is divided into four domains that are then described using different actions taken by teachers in the classroom or outside, within the school community, each written in the form of learning progressions in four stages – from Unsatisfactory through Basic and Proficient to Distinguished. Danielson's evaluation programme meis detailed and easy to use, and it contains a lot of additional evaluation tools, e.g. observation plans or feedback forms. However, the programme itself is not really a teacher-friendly tool, being too bureaucratic and generic. Even if it could not be fully adopted, it was a very good starting point for designing the TDS used in the SE to this day. Another source of methodological insight was the TRU standards

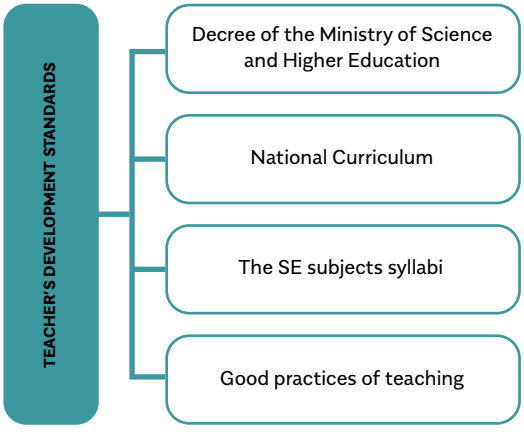
(Schoenfeld, 2016) designed at the University of California, Berkeley. These allowed the inclusion of mathematical good practices in the TDS. The last of the most important models incorporated into our design of the Standards in the last stage of the project were the evaluation standards applied in the School of Education at the University of Indiana Bloomington, from which the latest form of the TDS comes.

We strongly believe, however, that the key to the effective introduction of standards to everyday work lies not in simply translating other experiences but in modifying them to fit the Polish educational reality. The final product is therefore original and useful in our conditions.

The design of the Standards – the first and final drafts

From the very beginning of the process, the team designing the Standards wanted to include the whole spectrum of teachers' practices in them. They were also supposed to reflect the values and philosophy behind teaching in the School of Education. That is why the main sources for the Standards had to include external requirements (taken from the Decree of the Ministry describing compulsory elements of teachers' education and the National Curriculum for students) as well as internal findings concerning the content of the SE syllabi and lists of good practices coming from national and international research (see Clarke & Moore, 2013; Darling-Hammond & Bransford, 2005). The diagram below illustrates the sources of the Standards.

Diagram 1. Sources of the SE Teachers' Development Standards



Therefore, the Standards included several areas, and every one of them was described in terms of key questions and a graduate's profile. They concerned both the preparation, planning and conducting of lessons as well as the more personal elements of career and development planning. In the table below, we quote the names of these areas and their descriptions (Table 1).

Table 1. Areas of the Teachers' Development Standards and their descriptions

AREA I – DIDACTICS – PEDAGOGICAL KNOWLEDGE AND TEACHING THE DISCIPLINE OF PHILOSOPHY
The teacher understands the primary concepts, research tools and structures within the scope of the taught discipline, and plans didactic situations conducive to building a thorough understanding of the discipline in students.
AREA II – DESIGNING TASKS ENTAILING COGNITIVE CHALLENGES
The teacher understands and applies various strategies in order to further understanding of the given discipline, improve awareness of significant connections between various content and develop methods for using knowledge and abilities. The teacher knows how to combine different concepts and perspectives within the scope of the discussed issues in order to encourage critical thinking, creativity and co-operation in solving actual problems amongst school kids.
AREA III – ESTABLISHING ACCESSIBILITY OF KNOWLEDGE CONDITIONS FOR ALL SCHOOL KIDS
The teacher understands the knowledge acquisition and school kid development processes and is aware of diverse learning styles stemming from cognitive, linguistic, social, emotional as well as physical conditions. The teacher designs and introduces adequate didactic situations. The teacher uses knowledge about individual differences and also about cultural and social diversity in order to provide school kids with inclusive education, one where the satisfaction of high requirements is guaranteed to all school kids.
AREA IV – BUILDING THE IDENTITY OF SCHOOL KIDS AS LEARNERS
The teacher establishes an environment which supports the individual development of school kids and co-operation amongst learners, based on positive interactions amongst school kids and their active participation in the learning and motivation processes.
AREA V – MONITORING AND MODIFICATIONS. FEEDBACK IN THE LEARNING PROCESS.
The teacher understands and applies various assessment methods in order for school kids to become involved in their own development, monitoring progress and providing support in making decisions.
AREA VI – PROFESSIONALISATION AND PROFESSIONAL DEVELOPMENT
The teacher is engaged in school life and is part of the local community, co-creates the learning community, exhibits professionalism and shows the need for lifelong learning.

Key questions were used to evaluate and self-evaluate students' practice. As a tool of self-evaluation, the Standards were supposed to be used on an everyday basis by students themselves to check

their lessons and discuss them with peers observing their lessons. As a tool of assessment, they were used by mentors and tutors to provide feedback.

The first draft of the Standards was a really complicated and huge document. Students had trouble using them, and in fact, the Standards were read thoroughly only during semi-annual three-party assessment meetings (student, mentor, tutor). Also, as they were written in the form of learning progressions (every aspect of the Standards was transcribed into four steps of practice), and exemplary activities were sometimes inadequate for actual student practices in the classroom. After a year's trial use, the Standards were modified into a form applied to this day.

The final draft of the Standards now has four main areas:

1. Establishing a learning environment;
2. Knowledge about the discipline and teaching thereof;
3. Planning the didactic process;
4. Managing the didactic process.

This list of areas reflects the hierarchy of priorities in the learning process. First of all, we want our students to create an environment that helps their pupils to learn and grow. This means that they need to take care of establishing proper communication standards in their classroom, help children to co-operate and learn from each other and help each other when needed. Then, teachers should apply the content knowledge so that it realizes the most important elements and essential ideas and concepts (this area regards both content knowledge and pedagogical content knowledge). As the next step, all the important teaching goals need to be included in the most effective teaching plans, especially in the specific tasks for students. In the SE, we stress the importance of planning tasks with the use of taxonomies, like those of Bloom (Bloom et al., 1956) and Webb (1997). The informed and effective practice of assessing educational achievements is also part of the Standards. In the last part of the Standards are the strategies and techniques of managing the learning process – this is based on the experiences of the SE staff as well as research.

The form of the Standards was also modified. In the table below, we present an example of one of the categories in the area "Managing the didactic process" (Table 2).

Table 2. Example of a category from the Standards

		CATEGORY DESCRIPTION	EXAMPLE INDEXES	LEVEL OF PERFORMANCE
C.	**Use of strategies, methods and techniques**	The planned methods, strategies and techniques are entirely adequate for the teaching objectives and materials as well as school kids' needs.	The teacher understands method effectiveness conditions and ensures they are satisfied. The teacher uses various techniques supporting the performance of the same objectives, depending on children's needs. Materials prepared by the teacher facilitate the most effective children's work.	No data 1 2 3 4

Students, mentors and tutors use these Standards in the same way as the previous version. The Standards contain examples of practices that could be observed during the lesson. But the list is not a closed one and can be supplemented with any evidence collected during observation. An assessment is then conducted after collecting data from three different perspectives: students' self-evaluations, and mentors' and tutors' observations and evaluations of lesson plans. In every category, the performance level is assigned to one of the following levels: 1 – unsatisfactory, 2 – beginner, 3 – satisfactory, 4 – professional. If a given category of activities cannot be assessed on the basis of the collected data, the "No data" box is checked.

In consequence, students use the Standards as a guide in their lesson planning and to point out the most important elements of the lesson practice. At first, the students are usually not convinced of the importance of the Standards and point out the "bureaucracy" behind it, but in time, after some weeks of using it, they mostly agree that they are useful in practice.

Evaluation and discussion

After almost four years of functioning as a teacher training programme, the School of Education has collected a lot of useful materials

as the basis for further evaluation of the TDS. Every semester, students fill in the evaluation survey, and after every academic year, a group of students is chosen for an interview where they have the opportunity to extend their answers. For the sake of this article, we have analysed the effects of the evaluations conducted in the academic year 2018/2019. The interview group consisted of seven persons, comprising both Polish studies and mathematics students. Below, we quote fragments of the students' answers on the most important questions regarding the TDS.

It was essentially important to us to know whether implementing the Standards in the students' practice at the beginning of the academic year was successful. To assess that, we asked students for their first impressions of the document.

I remember that when I read it, I found it impossible, I could not implement it all. It is like designing the units of study... it turns out that it is possible. Later, when I read these standards and tried to summarise the practice, it turned out that yes, it was possible, it was not so difficult after all... as a result, it turned out to be all logically related [...] *but after the first reading, it makes a real impression.*

I thought it was weird, disturbing. I remember that I liked the fact that those four goals, this Platonic ideal, were unattainable and it showed me that one is always "on the way" and there is practically no possibility that they achieve these four. The only problem I had with it was that each lesson is a little different and each lesson can be assessed differently according to these areas, and I was wondering how to generalise it. Many times I did something right but many times I did something wrong, and I was wondering what would happen with it. Here, I think that the recordings and the tutor observations are helpful.

Generally, the first impressions of the document were slightly negative. Students mentioned the feeling of being overwhelmed by the size of the document and the large number of factors it included. The most important conclusion to be implemented in the following years was to introduce the Standards in a student-friendly way, during

the Integrative Seminar, so that the users are not uneasy with them from the very first moment.

The second important question was whether the Standards were truly implemented in the process of development in the School of Education. The interviewer asked the students to describe the practice of using the Standards during the tutorial process.

Yes, the tutor used to come to the lessons that I conducted in high school, and then we discussed these lessons, there were several such meetings.

Yes, especially after observing the lesson or when creating the lesson plan.

Yes, even yesterday we discussed them, although it is impossible to discuss it step by step, e.g. first, second, third area [...]. *Also, not everything can be done and checked over a dozen or so hours, so they are helpful to see which area is to be improved later, what exactly is wrong, but I would not stick to the Standards alone. Most often, it was done in a way that we chose one area for observation, the first one was general, and then we chose another. But also sometimes during the lesson it turns out that in the area we have chosen we would not have that much to talk about, so we changed it. It was a flexible approach, which I think is good.*

Yes, by all means. Mostly by way of summary and we chose the areas that are most important for me to work on. And also following the feedback I received. [...] *These standards were useful in this respect* [determining the development goals], *because they somehow closed certain categories. Because when I have to say that I have a problem, I have to say that I have a problem with everything, but when I have to indicate a specific category, it is not quite as big as it seemed to me in my emotional statements. It is different when you are to say if you are good or bad at something, and different when you point out the evidence. In this respect, it was helpful to me, because it allowed me to get rid of such a general impression and divide all my ideas of learning into smaller parts. And focus on these parts and not on the overall impression.*

These answers show a few ways in which the TDS function within the SE programme. The first of them is the semi-annual assessment. But it is much more important to use that as a basis for planning individual development goals and realising them during the programme. Students also mentioned using the Standards to plan their lessons. It is really reassuring that this document was considered helpful as a tool.

It is also essential for us for the Standards to be implemented in the practice of our students after their graduation as a tool to plan their development in their career as licensed teachers. First of all, it requires an ability to self-evaluate. This is one of the biggest challenges for our students.

Was it self-assessment that was the most difficult part of your tutorial, as it appears so often in your surveys?

Incredibly difficult, because this is already a summary. Although it is easy to point out someone else's strengths, at least for me, to realise that I am good at something and to talk about it and show it is extremely difficult. To talk about my strengths and to make people aware that I think I am good at this or that.

It is also connected with introducing the culture of co-operation where admitting both strengths and development areas is not a subject of judgement. It is not an easy task, because it is a novelty for many of our students. It also leads to the next problem – introducing the Standards to the professional practice of our graduates. They are unsure if their working environment will be as friendly and supportive as the SE environment. This is still the most challenging question to be answered in the future practice of the School of Education – how to encourage teachers to use the Standards in their independent practice.

In the coming years, we are going to ensure that the Standards are used in the actual school environment.

References

→ Atkinson, A.B. (2015). *Inequality: What Can Be Done?*. Cambridge: Harvard University Press.

→ Barber, M. and Mourshed, M. (2007). *How the World's Best-performing School Systems Come out on Top*. New York: McKinsey & Company.

- Bloom, B.S. (1956).*Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. In: E.J. Engelhart, W.H. Furst, D.R. Hill, D.R. Krathwohl (eds.), *Taxonomy of educational objectives: the classification of educational goals*. Handbook I: *Cognitive domain*. New York: David McKay.
- Brookfield, S.D. (2017). *Becoming a Critically Reflective Teacher*. San Francisco: Jossey-Bass.
- Centre of Study for Policies and Practices in Education (CEPPE) (2018). *Learning Standards, Teaching Standards and Standards for School Principals. A Comparative Study (OECD Education Working Papers No. 99)*.
- Clarke, M. and Moore, A. (2013). Professional standards, teacher identities and an ethics of singularity, *Cambridge Journal of Education*, *43*(4), 487–500.
- Danielson, Ch. (2013). *The Framework for Teaching Evaluation Instrument*, www.danielsongroup.org
- Darling-Hammond, L. and Bransford, J. (eds.) (2005). *Preparing Teachers for a Changing World. What Teachers Should Learn and Be Able to Do*. San Francisco: Jossey-Bass.
- Guerriero, S. (ed.) (2017), *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*. Paris: Organisation for Economic Cooperation and Development Publishing.
- Kleinhenz, E. and Ingvarson, L. (2007). *Standards for Teaching: Theoretical Underpinnings and Applications*, https://research.acer.edu.au/teaching_standards/1
- Marzano, R.J. (2007). *The Art and Science of Teaching. A Comprehensive Framework for Effective Instruction*. Alexandria: ASCD.
- Marzano, R.J. (2012). *Becoming Reflective Teache.* Bloomington: Marzano Research.
- Pickett, K., Wilkinson, R. (2010). *The Spirit Level: Why More Equal Societies Almost Always Do Better*. London: Penguin Books.
- Révai, N. (2018). *What Difference Do Standards Make to Educating Teachers? Review with Case Studies on Australia, Estonia and Singapore (OECD Education Working Paper No. 174)*. Paris: rganisation for Economic Cooperation and Development Publishing.
- Schoenfeld, A.H. (2016). *An Introduction to the Teaching for Robust Understanding (TRU) Framework*. Berkeley, CA: Graduate School of Education.
- *The Global Risks Report 2020 (15th Edition)* (2020), www3.weforum.org/docs/WEF_Global_Risks_Report_2020.pdf
- Webb, N.L. (1997). *Criteria for alignment and assessment of expectations in mathematics and science education (Research Monograph No. 6)*. Madison, WI: National Institute for Science Education.

Pre-service Teachers' Conceptions on Explicit, Socioconstructivist and Transmissive Approaches to Teaching and Learning in French-speaking Belgium

DOI: 10.47050/66515314.146–169

Chloé Gravé, Marie Bocquillon, Nathanaël Friant, Marc Demeuse

Building upon Wanlin and Crahay this research[1] aims at identifying the conceptions of pre-service teachers on transmissive, socioconstructivist and explicit approaches. While Wanlin and Crahay designed a questionnaire measuring the extent to which pre-service teachers embraced the transmissive and/or socioconstructivist approach, we hypothesise that explicit teaching is a distinct dimension of the model that needs to be apprehended by specific items and that may be embraced by some pre-service teachers. We designed a questionnaire including these new items on explicit teaching in addition to Wanlin and Crahay's items and administered it to 563 pre-service primary and secondary teachers in six training institutions in French-speaking Belgium. Our results do not support our starting hypothesis. Further focusing on transmissive and socioconstructivist conceptions in our respondents, our analyses show that the socioconstructivist conception is widely shared but do not systematically oppose a transmissive conception. We found evidence of effects related to institution, year of study and type of training on these conceptions.

Keywords:
pedagogical conceptions
explicit teaching
transmissive approach
socioconstructivist approach
pre-service teachers

1 More information on this research can be found here: http://www.umons.ac.be/inaspub3.

Introduction

Finding its origin in the birth of the new pedagogy at the end of the 19th century and during the 20th century, a debate on pedagogical approaches has animated the educational scene, both in French and English-speaking countries. By way of example, the book *Constructivist Instruction: Success or Failure* edited by Tobias and Duffy (2009), which gives the floor to (socio)constructivist and instructionist authors, gives a good account of this debate. This book was published following a symposium of the American Educational Research Association (AERA), itself organised as a follow-up to the controversial paper by Kirschner, Sweller and Clark (2006). The latter, supported by empirical research findings, has been the subject of several responses from more (socio)constructivist authors (Hmelo-Silver, Duncan & Chinn, 2007; Kuhn, 2007; Schmidt, Loyens, Gog & Paas, 2007) to which the authors of the original text have again responded (Sweller, Kirschner & Clark, 2007). In the French-speaking world, we can cite the example of the text written by Paquay (2007) in response to that of Gauthier, Bissonnette and Richard (2007), which aimed at disseminating research results highlighting the effectiveness of instructional approaches.

Generally speaking, authors of instructionist orientation highlight, on the basis of experimental research comparing the effectiveness of various pedagogical approaches on student learning, the greater effectiveness of instructionist approaches such as explicit teaching compared to socioconstructivist approaches (see Kirschner, Sweller & Clark, 2006; Bissonnette et al., 2010). Moreover, these authors also base their argument on research in cognitive psychology that shows that instructionist approaches respect the cognitive load of learners, unlike socioconstructivist approaches (Sweller, Kirschner & Clark, 2007). For their part, other authors question these research findings and promote socioconstructivist approaches (e.g. Herman & Gomez, 2009; Schwartz, Lindgren, & Lewis, 2009), relying more on rhetoric than on empirical research (Tobias, 2009).

The aim of this study is to examine the extent to which future teachers in different training institutions in French-speaking Belgium adhere to one and/or the other pedagogical approach. Indeed, a study conducted in Switzerland by Wanlin and Crahay (2015), based on a questionnaire on the socioconstructivist and

transmissive approaches administered to 228 future teachers, showed that the conceptions of future teachers are less divided than the pedagogical discourse opposing the socioconstructivist and transmissive approaches. For example, some future teachers are in favour of the transmissive approach but are not opposed to the socioconstructivist approach.

Nevertheless, the questionnaire proposed by Wanlin and Crahay (2015) does not differentiate between the transmissive and the explicit approach. However, a careful reading of the debate on pedagogical approaches shows that explicit teaching, an instructionist approach whose effectiveness has been demonstrated by empirical research, is frequently confused with the transmissive approach. This article therefore aims to measure the adherence of future teachers to three pedagogical approaches: the socioconstructivist approach, the explicit approach and the transmissive approach.

Literature review

Socioconstructivist, transmissive and explicit approaches

While socioconstructivist and instructionist writers agree on how the student learns (the learning process), they do not agree on how this learning (the teaching process) can be promoted: "Constructivism has long been recognised as a useful theory of learning in which learners build mental representations by engaging in appropriate kinds of active cognitive processing during learning. It is tempting to also view constructivism as a prescription for instruction in which learners must be behaviourally active during learning. While accepting constructivism as a theory of learning, this chapter examines what is wrong with this view of constructivism as a prescription for instruction" (Mayer, 2009, p. 184).

The socioconstructivist teaching approach refers to different approaches such as problem-based learning, project-based pedagogy, discovery and inquiry learning (Hmelo-Silver, Duncan & Chinn, 2007; Tobias & Duffy, 2009; Wise & O'Neill, 2009). Generally speaking, socioconstructivist approaches are characterised by the use, at the beginning of learning, of authentic and complex tasks during which the teacher plays the role of facilitator (Bissonnette et al., 2010; Gauthier, Bissonnette & Richard, 2009; Stordeur, 2012).

The socioconstructivist approach focuses on the student's rhythm and preferences (Bissonnette et al., 2010).

The definition of the socioconstructivist approach used in this study is similar to that used by Wanlin and Crahay to construct the items in their questionnaire: "The items representing socio-constructivism revolve around the idea that students can find the procedures for solving many problems alone and without the help of an adult, but also that this identification of solutions can be group-based and takes place even before the teacher shows the problem-solving procedures" (Wanlin & Crahay, 2015, p. 261).

In contrast to the study by Wanlin and Crahay, a difference is established in this study between the explicit and the transmissive approach. Wanlin and Crahay's definition of the transmissive approach refers, without distinguishing between them, to the transmissive approach and the explicit approaches as they will be defined in the rest of the text: "[W]e have items that emphasise the need for teachers to explain, demonstrate and present content, and to communicate the steps to follow in order to solve problems. These items, which also include the need for exercise and application, correspond [...] to the ideas of proponents of transmission" (Wanlin & Crahay, 2015, p. 261).

While this definition by Wanlin and Crahay can be associated with the explicit and transmissive approaches, this study distinguishes between these. The explicit approach refers to a systematic teaching approach proceeding from the simple to the complex and including three indispensable steps (Gauthier, Bissonnette & Richard, 2013): (1) the teacher clearly demonstrates the procedures for performing the proposed tasks (modelling); (2) students practise the task with other students and with the teacher (guided practice); and (3) the student performs the task alone (independent practice). Moreover, during an explicit teaching lesson, the teacher constantly checks students' understanding and provides them with a lot of feedback. The transmissive approach, on the other hand, refers to an approach in which the teacher exposes the contents to the pupils, who then apply them alone in exercises. In a transmissive lesson, there is no guided practice phase or verification of comprehension, and feedback is usually done at the end of the lesson (Gauthier, Bissonnette & Richard, 2013).

Teachers' conceptions and the influence of teacher training

There are many synonyms for the term "conceptions": opinions, values, beliefs, etc. (Pajares, 1992). Vause (2009) defines conceptions as preconceived ideas, theories drawn from various sources, generalisations from personal experience that enable the teacher to act and justify their action(s).

Conceptions are not directly observable or measurable and therefore must be inferred from what people say or do (Pajares, 1992). This justifies our questionnaire method for identifying future teachers' conceptions.

Sometimes the conceptions of future teachers are not harmonious and are even contradictory. Nevertheless, they can coexist because their use will depend on the situation in which the future teacher finds him/herself (Mortimer, 1995, cited in: Deaudelin et al., 2005). One could therefore have future teachers who have socioconstructivist and transmissive conceptions, although these are often opposed in the literature (Wanlin & Crahay, 2015).

Although pre-service teacher education is intended to change future teachers' conceptions (Cole & Knowles, 1993, cited in: Nettle, 1998), some research has shown that it is ineffective in changing these conceptions.

For example, Olson (1993, cited in: Boraita & Crahay, 2013) found a status quo in the teaching conceptions of two future elementary teachers in Ontario, Canada. Hoy and Rees (1977, cited in: Boraita & Crahay, 2013) found a change in conceptions as a result of the theoretical courses followed by pre-service American secondary school teachers, but their first practicum resulted in a return to teacher-centred conceptions. The same is true of Doudin and his colleagues (2001, cited in: Boraita & Crahay, 2013) in Quebec, where, after the practicum, future elementary teachers have less socioconstructivist conceptions.

In fact, for there to be a change in conceptions, the future teacher must be in a situation of inconsistency (Pajares, 1992), which is rarely the case during pre-service training since the future teacher is in a familiar situation. Future teachers are not devoid of conceptions about teaching when they begin their training, since they have been in the classroom all their lives.

Yet other research indicates the opposite. In the United States, Bolin (1990, cited in: Boraita & Crahay, 2013) notes a shift in conceptions

of transmission to a process in which the student is active with a future primary school teacher. This is also the case for Markel (1995, cited in: Boraita & Crahay, 2013) with five future primary school teachers in Arizona and for Daguzon and Goigoux (2007) with 15 future French teachers.

What is the situation in the Wallonia-Brussels Federation? In French--speaking Belgium, pre-service primary and lower secondary (ISCED 1 and 2) teachers are trained for three years (180 credits) in tertiary institutions called **hautes écoles** by specialists of education who can embrace different approaches to teaching and learning. The idea of pedagogical freedom is indeed strongly supported: each teacher, as a "reflective practitioner" (Schon, 1984), is free to embrace his/her own approach to teaching and learning. Furthermore, teacher education aims at changing pre-service teachers' conceptions of teaching and learning, as it is often said that students arrive there with a transmissive preconception. Following Nettle (1998), we hypothesise that pre-service education has an effect on changing pre-service teachers' conceptions. We also hypothesise that different *hautes écoles* may have different effects, as their teacher trainers may embrace different approaches and pass them on to their students. Moreover, pre-service upper secondary (ISCED 3) teachers are trained part-time at the university for one year (called **agrégation**) after they have completed their subject training or while in the completion of it. We hypothesise that these differences in pre-service teacher training imply differences in the conceptions of these pre-service teachers.

Measuring teachers' conceptions

The tool constructed by Wanlin and Crahay (2015) makes it possible to identify socioconstructivist and transmissive teacher conceptions. They were interested in the conceptions of 228 future primary and secondary school teachers in the canton of Geneva and the factors that influence these conceptions. They also addressed the question of the antagonistic nature of two conceptions: does having socioconstructivist conceptions imply the rejection of transmissive conceptions?

A latent class analysis revealed three profiles with differences between future primary and secondary school teachers. At the end of their training, future primary school teachers have more socioconstructivist

conceptions that are opposed to transmission, whereas the first-year future primary teachers and the majority of future secondary school teachers have mixed profiles: pro-transmission without rejecting socioconstructivism or the rejection of socioconstructivism without pronouncing themselves in favour of transmission.

Since Wanlin and Crahay's tool (2015) does not distinguish between the two teacher-centred approaches defined in this research (transmission and explicit approach), our study aims to enrich this instrument.

Hypotheses

Following this literature review, we formulate seven hypotheses:

1. Respondents can be characterised by three non-independent dimensions: socioconstructivist, transmissive and explicit conceptions.
2. There is a weak negative correlation between socioconstructivist and transmissive conceptions.
3. In *hautes écoles*, students have a more socioconstructivist than transmissive conception.
4. In *hautes écoles*, first-year students have a more transmissive conception than third-year students.
5. In *hautes écoles*, third-year students have a more "socioconstructivist" conception than first-year students.
6. There is a *haute école* effect, some being more socioconstructivist than others.
7. There is a university effect, ISCED 3 teachers being less socioconstructivist than their ISCED 1 and 2 counterparts.

Method

Sample

To test these hypotheses, a pen-and-paper questionnaire was administered to 563 pre-service teachers in French-speaking Belgium. This sample comes from five *hautes écoles* and one university in different school networks within the Wallonia-Brussels Federation. The distribution of these students according to their course of study is presented in Table 1. There are 298 pre-service primary school

teachers and 265 pre-service lower and upper secondary school teachers. This sample consists of 439 women and 124 men.

Table 1. Description of occasional sample by training taken

	PRIMARY	LOWER SECONDARY	UPPER SECONDARY	TOTAL
N	298	201	64	563

The 298 pre-service primary school teachers come from five different *hautes écoles* with students from the first and third years. The distribution within these *hautes écoles* and years is shown in Table 2. Among these future primary school teachers, there are 257 women and 41 men.

Table 2. Distribution of pre-service primary school teachers in the five hautes écoles

HAUTE ÉCOLE **2**[1]		*HAUTE ÉCOLE* **3**		*HAUTE ÉCOLE* **5**[2]		*HAUTE ÉCOLE* **6**		*HAUTE ÉCOLE* **7**	
69		50		15		100		64	
1st year	3rd year	1st year	3rd year	1st year	3rd year	1st year	3rd year	1st year	3rd year
40	29	32	18	8	7	83	17	46	18

The 265 pre-service secondary school teachers come from three different institutions with students from the first and third years at *hautes écoles* and students following the *agrégation* at university. The distribution within these institutions is shown in Table 3. There are 182 women and 83 men.

Table 3. Distribution of pre-service secondary school teachers in three institutions

UNIVERSITY	*HAUTE ÉCOLE* **3**		*HAUTE ÉCOLE* **5**	
64	107		94	
agrégation	1st year	3rd year	1st Year	3rd year
64	75	32	74	20

1 The numbering of *hautes écoles* begins at 2 because code "1" has been given to the university.

2 *Haute école* 4 has been removed from the analyses because only first-year students answered the questionnaire.

Pre-service lower secondary education teachers from the first and third years, as presented in the table above, follow different training courses depending on the subject they will teach: French/non-denominational philosophy, French/French as a Foreign Language (FLE), education in philosophy and citizenship, Germanic languages, mathematics, sciences, humanities, home and social economics or plastic arts. The distribution of pre-service lower secondary teachers by subject is shown in Table 4.

Table 4. Distribution of future lower secondary school teachers by subject studied

SUBJECTS	*N*
French/non-denominational philosophy	13
French/FLE	30
Education in philosophy and citizenship	9
Germanic languages	26
Mathematics	62
Sciences	19
Humanities	30
Home and social economics	21
Plastic arts	5

These pre-service teachers were interviewed using a pen-and-paper questionnaire. All of them took a position on the 65 items of the questionnaire, adapted from Wanlin and Crahay (2015), on a Likert scale ranging from "total disagreement" to "total agreement".

Questionnaire

The questionnaire was composed of 65 items, 63 of which are associated with socioconstructivist (constr), transmissive (trans) or explicit (expl) approaches. These are presented in Annex 1. There are 17 socioconstructivist, 12 transmissive and 34 explicit items. This inequitable distribution is explained by a change made to the structure of the questionnaire in order to validate it. Thus, some items making up the explicit scale are in fact subsets made up of common points between the explicit approach and the other two approaches. These

subsets have been omitted in order to ensure the internal validity of this new scale. Two "caricatural" items were added. These are marked with a C in Annex 1. Of these 65 items, 30 were taken from the Wanlin and Crahay (2015) questionnaire and 35 were added (these 35 added items are followed by a * in Annex 1).

The items have been mixed to avoid order of presentation effects. For each item, respondents were asked to rate their level of agreement on a six-point Likert scale ranging from "strongly disagree" to "strongly agree". The even number of categories encourages decision making on the part of respondents, who are obliged to position themselves (Berthier, 2011). The few nonresponses (maximum 6 by item) were coded as 3.5, meaning that the respondent does not agree or disagree with the statement.

In addition, other information such as the type of training ("Groupe" variable), level of education ("Bloc" variable), gender, employment history in teaching, institution attended ("Institution" variable) and the subject chosen by pre-service lower secondary school teachers were also collected to enable an analysis of the possible influence of these variables on the conceptions of future teachers.

Results

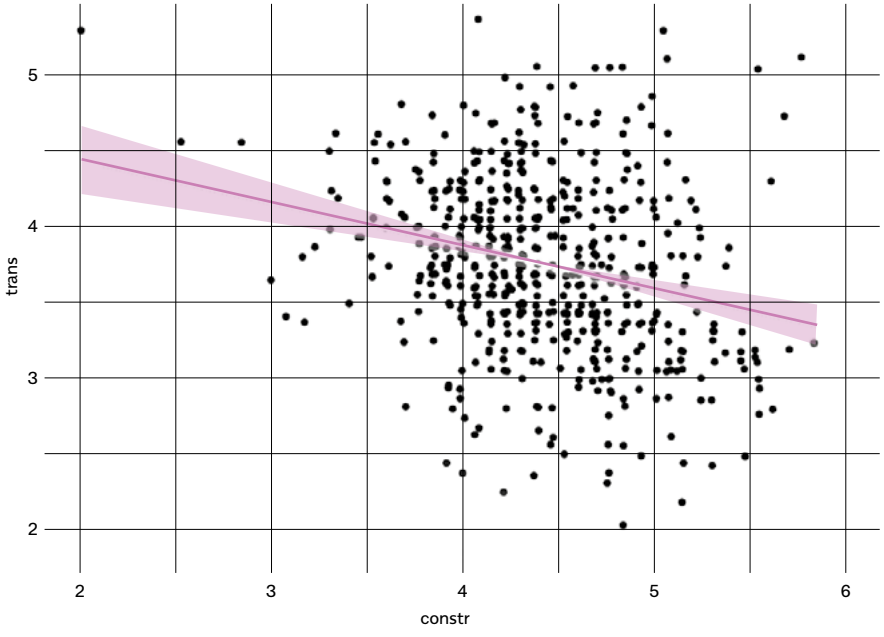
Respondents can only be characterised by two non-independent dimensions (socioconstructivist and transmissive conceptions) and there is a weak negative correlation between them

Our first hypothesis cannot be confirmed: we cannot show any evidence of an "explicit" dimension in respondents, whereas the socioconstructivist and transmissive dimensions are consistent. On the one hand, Cronbach's alpha is good for the socioconstructivist (.74) and transmissive (.78) scales, showing acceptable internal consistency, but not for the explicit (.54) scale. On the other hand, a factor analysis (MinRes, Oblimin rotation) shows that although up to seven factors could be retained, only two factors have eigenvalues greater than 1, these two factors being the socioconstructivist and the transmissive conceptions. All the socioconstructivist items load on factor 1 and all the transmissive items load on factor 2 (except for item 42). Explicit items load on either the socioconstructivist or transmissive dimension. The factor analysis also showed that item number 42, "The teacher should

define the objectives of each lesson before teaching", actually loads more on the socioconstructivist factor than on the transmissive factor. It has subsequently been removed from the analyses (Cronbach's alpha for the modified transmissive scale is .79). Scores for each of the two conceptions are calculated by adding the points given to each item (from 1 for "total disagreement" up to 6 for "total agreement"), then dividing this number by the number of items. Since the consistency of the scale is too weak, no score has been calculated for the explicit approach.

Our factor analysis shows that there is a weak negative correlation of $r = -.13$ between the two principal factors, identified as a transmissive and a socioconstructivist conception. Plotting the score of the transmissive conception against the score of the socioconstructivist conception gives Figure 1, which shows a weak negative correlation ($r = -.25$) between the two conceptions. Note that the variance of the residuals is so high that having a high score in socioconstructivism can be associated with a low score in "transmission" just as well as a high one.

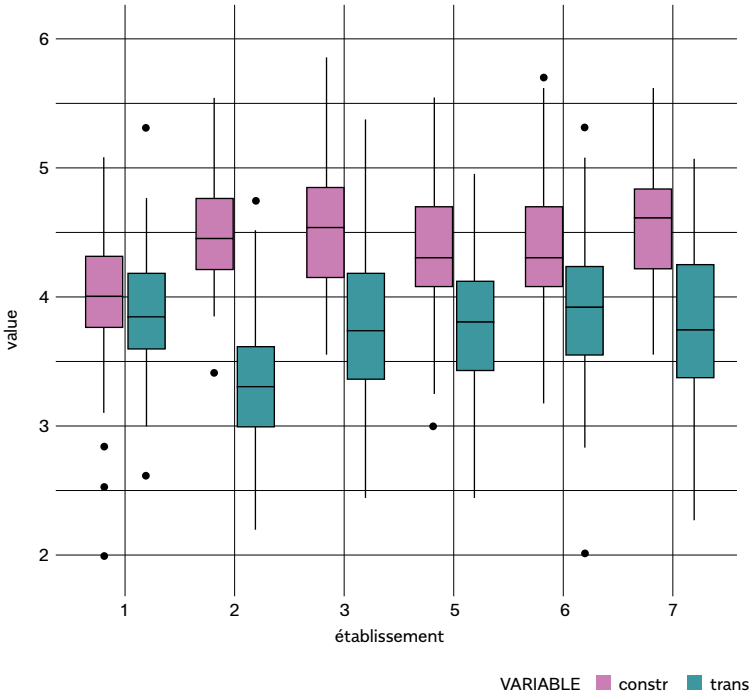
Figure 1. Transmissive vs socioconstructivist conceptions



In hautes écoles, students have a more socioconstructivist than transmissive conception

As Figure 2 shows, the score of the socioconstructivist conception is always higher than the score of the transmissive conception, especially in *hautes écoles*. Our hypothesis is therefore confirmed.

Figure 2. Scores of transmissive and socioconstructivist conceptions by institution

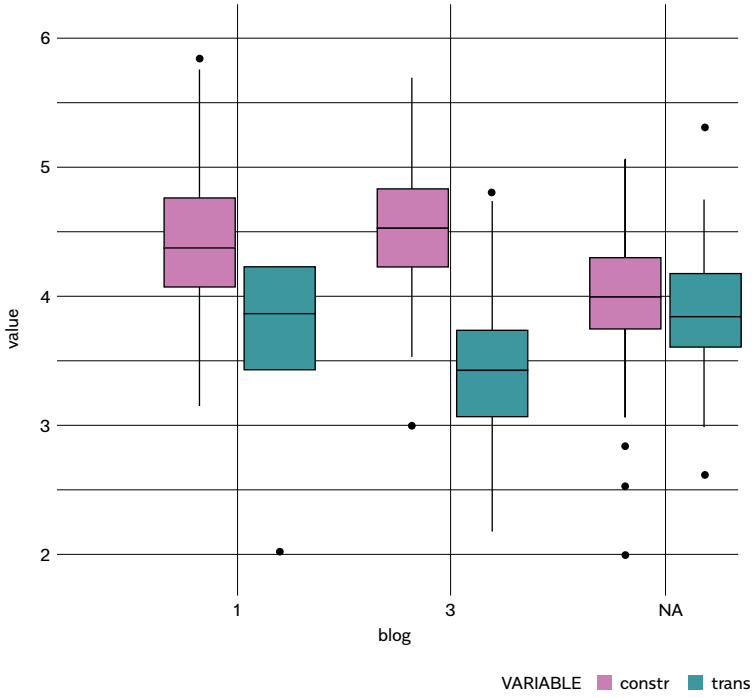


In hautes écoles, first-year students have a more transmissive conception than third-year students, who have a more socioconstructivist conception

As Figure 3 shows, the third years have a markedly lower score than the first years on the transmissive conception. Our hypothesis is thus confirmed. Teacher training seems to have an impact on the rejection of a transmissive approach. The difference between first years and third years on the socioconstructivist conception is shallower as, from their

first year, pre-service teachers already embrace a socioconstructivist conception. This effect could be due to the time of year our survey was undertaken, i.e. in February and March, when first years had already spent a full term in their *hautes écoles*.

Figure 3. Transmissive and socioconstructivist conceptions from the first and third years in *hautes écoles*



NA – the university students doing their *agrégation*.

There are institution, year and training effects explaining variations in pre-service teachers' conceptions

In order to test our hypothesis of an institution effect, we ran multilevel analyses trying to predict the extent to which students embrace the transmissive conception, then the socioconstructivist conception, using institution as a level-2 random variable. Multilevel modelling first starts with a null model where no predictor is inserted. This null model gives us the proportion of variance explained by the institution. Our null model is the following:

$$\text{score}_{ij} = \beta_0 + u_{0j} + e_{ij}$$

where$_{ij}$ is the score (transmissive or socioconstructivist conception) of student $_i$ in the institution, n_j, β_0 is the grand mean of students' scores across *hautes écoles*, u_{0j} is the effect of institution j on students' conception and e_{ij} is a student-level residual.

Based on this null model, we compute the variance partition coefficient (VPC), which gives us the proportion of total variance that is due to differences between institutions:

$$VPC = \frac{\sigma^2 u_0}{\sigma^2 u_0 + \sigma^2 e}$$

The proportion of total variance of the transmissive conception that is due to differences between institutions (*hautes écoles* and university) is 10%, whereas this proportion is 13.8% for the socioconstructivist conception.

Adding the year of study as a fixed effect (only for the *hautes écoles*, as there is only one year of study in the *agrégation*), the equation is the following:

$$\text{score}_{ij} = \beta_0 + \beta_1 year_{ij} + u_{0j} + e_{ij}$$

This analysis gives a coefficient of -0.36 for the transmissive conception, which means that, controlling for the institution effect, third years have a score for "transmission" that is on average 0.36 points (on 6) lower than their first-year counterparts. The proportion of variance explained by the institution level drops to 8% when adding this fixed effect, which means that the year of study captured some variation, but not all.

The coefficient for the socioconstructivist conception is 0.12, which means that, controlling for the institution effect, third years have a score for socioconstructivism that is on average 0.12 points (on 6) higher than their first-year counterparts. Here, the proportion of variance explained by the institution level drops more dramatically to 1.1%,

which means that the year of study captures most of the variation between *hautes écoles*. In other words, there is no *hautes écoles* effect on the socioconstructivist conception, but there is a year of study effect and a university effect (students at the university have a lower score for socioconstructivism).

These institution and year effects are summarised in Figures 4 and 5.

Figure 4. Institution and year effects on the transmissive conception

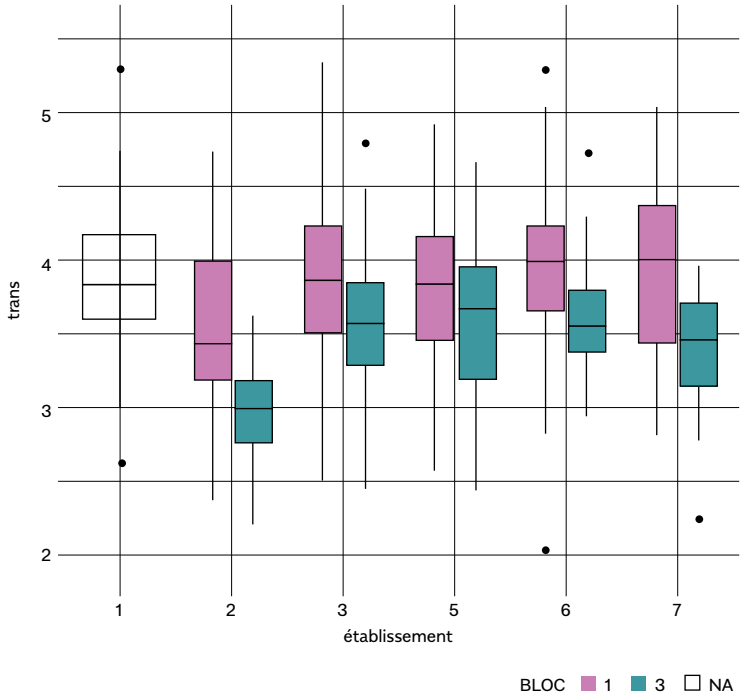
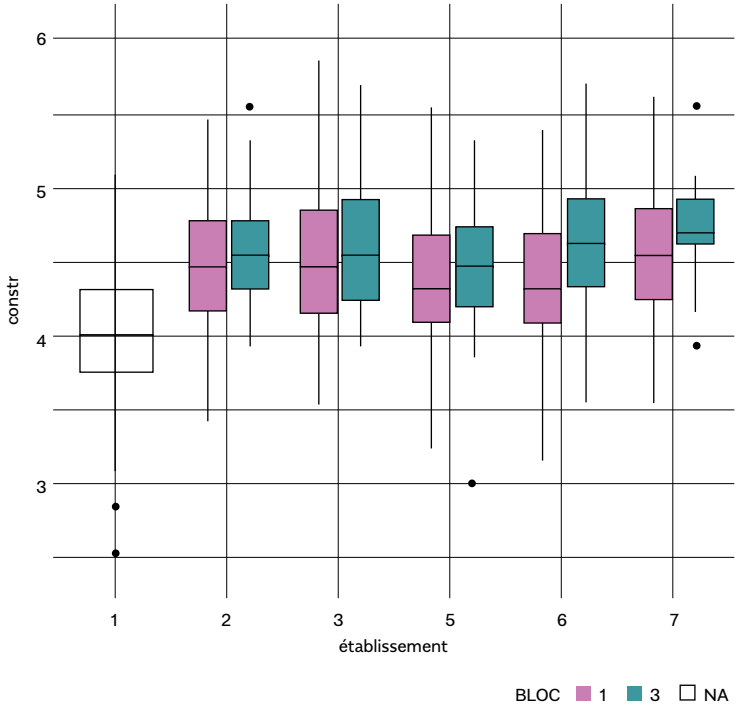


Figure 5. Institution and year effects on the socioconstructivist conception



Adding the training taken (primary vs lower secondary) as a fixed effect (only for the *hautes écoles*, as there is only one training – upper secondary – at university), the equation is the following:

$$\text{score}_{ij} = \beta_0 + \beta_1 year_{ij} + \beta_2 training_{ij} + u_{0j} + e_{ij}$$

This analysis reveals an effect of the training taken on both transmissive and socioconstructivist conceptions, controlling for the institution and year. Pre-service lower secondary teachers have a more transmissive (β_2 = 0.10) and less socioconstructivist conception (β_2 = -0.13) than pre-service primary teachers.

Discussion

First of all, our results do not support the existence of a consistent explicit conception in our respondents. However, our analyses show some interesting results regarding the transmissive and socioconstructivist approaches.

Future teachers generally have socioconstructivist conceptions without rejecting transmissive conceptions, the correlation between the two scales being only slightly negative. This is in line with the conclusions of Wanlin and Crahay (2015), who invalidated the systematic antagonism between these two conceptions. It is also consistent with the findings of Chan and Elliott (2004), who argue that future teachers in Hong Kong do not only believe in one pedagogical design.

Nevertheless, the profiles are different depending on the training followed. For example, pre-service primary school teachers are the most critical of transmissive conceptions. Pre-service upper secondary teachers are more critical of socioconstructivist conceptions. There is also a year of study effect, with future teachers becoming more socioconstructivist and less transmissive as they progress through their training.

These findings are similar to those of Daguzon and Goigoux (2007) and Su (1992, cited in: Nettle, 1998), for whom pre-service teacher education influences teacher conceptions. Indeed, current training in French-speaking Belgium advocates a competency-based approach that is assimilated into socioconstructivist approaches (Maroy, 2002). These results are also in line with those of Wanlin and Crahay (2015), who showed that in Switzerland, as they advance in their training, pre-service primary school teachers become more and more in favour of socioconstructivism and opposed to transmissive teaching.

In addition to differences between years of study, differences between the training institutions for pre-service primary school teachers were also revealed. This institution effect suggests that the training provided there does indeed play a role in the development/change in the pedagogical concepts of future primary school teachers. This result allows us to moderate the positions of Larochelle and Bednarz (1994) and Chin and Benne (1969, cited in: Boraita & Crahay, 2013), for whom training rarely allows conceptual change.

Interviews with education specialists and future teachers would make it possible to qualify the statements of pre-service teachers and compare them with those of their teachers in the manner of Nettle (1998) and Zanting and his colleagues (2001). In this way, it would also be possible to identify the source of variation in conceptions, as Vause (2009) has done, for whom theoretical courses develop beliefs about teaching strategies and practicums develop beliefs about students and learning. The study of the impact of practicums could also be an extension of this study. We would suggest interviewing future teachers before and after the practicums, in order to find out whether they provoke a backtracking of beliefs (Leavy, McSorley & Boté, 2007, cited in: Boraita & Crahay, 2013) or an evolution (Boraita & Crahay, 2013). It would also be interesting to compare the conceptions identified through the questionnaire with classroom practices in order to identify whether there are differences between what is said and what is done (Deaudelin et al., 2005). Moreover, following the example of Könings and his colleagues (2014), one could question the congruence of students' and teachers' conceptions of the act of teaching and the act of learning.

References

- Bissonnette, S., Richard, M., Gauthier, C. and Bouchard, C. (2010). Quelles sont les stratégies d'enseignement efficaces favorisant les apprentissages fondamentaux auprès des élèves en difficulté de niveau élémentaire? Résultats d'une méga-analys*, Revue de recherche appliquée sur l'apprentissage*, *3*(1), 1–35.
- Boraita, F. and Crahay, M. (2013). Les croyances des futurs enseignants: est-il possible de les faire évoluer en cours de formation initiale et, si oui, comment?, *Revue française de pédagogie*, *183*, 99–158.
- Chan, K.-W. and Elliott, R.G. (2004). Relational analysis of personal epistemology and conceptions about teaching and learning, *Teaching and Teacher Education*, *20*, 817–831.
- Daguzon, M. and Goigoux, R. (2007). *L'influence de la prescription adressée aux professeurs des écoles en formation initiale: construction d'un idéal pédagogique*. Les Actes du Congrès International d'Actualité de la Recherche en Éducation et en Formation, www.congresintaref.org/actes_pdf/AREF2007_Marc_DAGUZON_254.pdf
- Deaudelin, C., Lefebvre, S., Brodeur, M., Mercier, J., Dussault, M. and Richer, J. (2005). Évolution des pratiques et des conceptions de l'enseignement,

de l'apprentissage et des TIC chez des enseignants du primaire en contexte de développement professionnel, *Revue des sciences de l'éducation*, *31*(1), 79–110.

→ Gauthier, C., Bissonnette, S. and Richard, M. (2007). Quelle pédagogie au service de la réussite de tous les élèves. In: M. Frenay, X. Dumay (eds.), *Un enseignement démocratique de masse. Une réalité qui reste à inventer* (pp. 363–384). Louvain-la-Neuve: Presses Universitaires de Louvain.

→ Gauthier, C., Bissonnette, S. and Richard, M. (2009). Passer du paradigme de l'enseignement au paradigme de l'apprentissage. Les effets néfastes d'un slogan, *Les Actes de la recherche*, *7*(13), 239–271.

→ Gauthier, C., Bissonnette, S. and Richard, M. (2013). *Enseignement explicite et réussite des élèves. La gestion des apprentissages*. Bruxelles: De Boeck.

→ Herman, P. and Gomez, L.M. (2009). Taking Guided Learning Theory to School. Reconciling the Cognitive, Motivational, and Social Contexts of Instruction. In: S. Tobias, T.M. Duffy (eds.), *Constructivist Instruction. Success or Failure?* (pp. 62–81). New York: Routledge.

→ Hmelo-Silver, C., Duncan, R.G. and Chinn, C.A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006), *Educational Psychologist*, *42*, 99–108.

→ Kirschner, P.A., Sweller, J. and Clark, R.E. (2006). Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching, *Educational Psychologist*, *41*(2), 75–86.

→ Könings, K., Seidel, T., Brand-Gruwel, S. and Merrienboer, J.J.G. van (2014). Differences between students' and teachers' perceptions of education: Profiles to describe congruence and friction, *Instructional Science*, *42*, 11–30.

→ Kuhn, D. (2007). Is direct instruction the answer to the right question?, *Educational Psychologist*, *42*, 109–114.

→ Larochelle, M. and Bednarz, N. (1994). À propos du constructivisme et de l'éducation, *Revue des sciences de l'éducation*, *20*(1), 5–19.

→ Maroy, C. (2002). Quelle autonomie professionnelle pour les enseignants? Le cas de la Communauté française de Belgique, *Revue internationale d'éducation de Sèvres*, *30*, 41–50.

→ Mayer, R.E. (2009). Constructivism as a Theory of Learning Versus Constructivism as a Prescription for Instruction. In: S. Tobias, T.M. Duffy (eds.), *Constructivist Instruction. Success or Failure?* (pp. 184–200). New York: Routledge.

→ Nettle, E.B. (1998). Stability and change in the beliefs of student teachers during practice teaching, *Teaching and Teacher Education*, *14*(2), 193–204.

→ Pajares, F. (1992). Teachers' beliefs and educational research: cleaning up a messy construct, *Review of Educational Research*, *62*(3), 307–332.
→ Paquay, L. (2007). Quelle pédagogie au service de la réussite de tous les élèves? Mise en question(s) de l'intervention de C. Gauthier. In: M. Frenay, X. Dumay, *Un enseignement démocratique de masse. Une réalité qui reste à inventer* (pp. 385–397). Louvain-la-Neuve: Presses Universitaires de Louvain.
→ Schmidt, H.G., Loyens, S.M.M., Gog, T. van and Paas, F. (2007). Problem-Based Learning is Compatible with Human Cognitive Architecture: Commentary on Kirschner, Sweller, and Clark (2006), *Educational Psychologist*, *42*(2), 91–97.
→ Schwartz, D.L., Lindgren, R and Lewis, S. (2009), Constructivism in an Age of Non--Constructivist Assessments. In: S. Tobias, T.M. Duffy (eds.), *Constructivist Instruction. Success or Failure?* (pp. 34–61). New York: Routledge.
→ Stordeur, J. (2012). *Enseigner et/ou apprendre: Pour choisir nos pratiques*. Bruxelles: De Boeck.
→ Sweller, J., Kirschner, P.A., Clark, R.E. (2007). Why Minimally Guided Teaching Techniques Do Not Work: A Reply to Commentaries, *Educational Psychologist*, *42*(2), 115–121.
→ Tobias, S. (2009). An Eclectic Appraisal of the Success or Failure of Constructivist Instruction. In: S. Tobias, T.M. Duffy, *Constructivist Instruction. Success or Failure?* (pp. 335–350). New York: Routledge.
→ Tobias, S. and Duffy, T.M. (2009). *The Success or Failure of Constructivist Instruction*. In: S. Tobias, T.M. Duffy (eds.), *Constructivist Instruction. Success or Failure?* (pp. 3–10). New York: Routledge.
→ Vause, A. (2009). Les croyances et connaissances des enseignants à propos de l'acte d'enseigner. Vers un cadre d'analyse, *Les cahiers de Recherche en Éducation et Formation*, *66*, 98–115.
→ Wanlin, P. and Crahay, M. (2015). Les enseignants en formation face aux approches pédagogiques: une analyse en classes latentes, *Revue des sciences de l'éducation*, *41*(2), 251–276.
→ Wise, A.F. and O'Neill, K. (2009). Beyond More Versus Less. A Reframing of the Debate on Instructional Guidance. In: S. Tobias, T.M. Duffy (eds.), *Constructivist Instruction. Success or Failure?* (pp. 82–105). New York: Routledge.
→ Zanting, A., Verloop, N. and Vermunt, J.D. (2001). Student teachers eliciting mentors'practical knowledge and comparing it to their own beliefs, *Teaching and Teacher Education*, *17*(6), 725–740.

Annex 1

Of these 65 items, 30 were taken from the Wanlin and Crahay (2015) questionnaire and 35 were added (these 35 added items are followed by a *).

NUMBER	ITEM	
1	The teacher should enable students to make connections between new knowledge and prior knowledge.*	expl
2	The main task of the teacher is to transmit knowledge and know-how to the students.	trans
3	Learning is enabled by students' research in solving problem tasks.*	constr
4	Good teaching always draws on the students' personal experiences.	constr
5	The student must work in a group before working alone.*	expl
6	Students are required to solve problems as often as possible as they have been taught in the classroom.	expl
7	The teacher must clearly define and communicate the objectives of the course to the students.*	expl
8	The teaching of academic knowledge and the teaching of social skills must be carried out at the same time.*	expl
9	Students can find procedures for solving many problems on their own and without the help of an adult.	constr
10	Students learn most when the teacher continually checks their understanding.*	expl
11	After the teacher has shown them how to do the exercises, the students move on to the exercises that they have to do independently, without the help of the teacher.*	trans
12	To be effective, the teacher must plan his or her lesson in a precise and non-rigid manner, based on the official curriculum.*	expl
13	The only evaluation that counts is the final evaluation.*	trans
14	Teachers need to motivate students to find their own ways of solving problems even if they are not very effective.	constr
15	Learners should have the opportunity to build their knowledge in collaboration with their classmates or with the teacher.	constr
16	The teacher should allow students to assess themselves.*	expl
17	The most effective teachers demonstrate the right way to solve problems to their students.	expl
18	Pupils should only be given problematic tasks when they have mastered the contents and procedures.	expl

19	When homework is given, it is to allow the student to discover new knowledge on his or her own.*	constr
20	As a general rule, students are not able to discover the relationships between the different contents on their own.	expl
21	It is important, to monitor the learning process, that all students do the same work at the same time and in the same way.*	trans
22	Before spending time on problem-solving, students must be given time to learn and retain the underlying procedures.	expl
23	The student must work alone before working in a group.*	constr
24	Students learn more when the teacher explains, demonstrates and exposes the content.	expl
25	At school, knowledge must be learnt like naturally acquired knowledge such as walking.*	constr
26	Previous knowledge is mastered by the students and does not need to be recalled.*	trans
27	The teacher should often give students the opportunity to solve problems in pairs or small groups.	constr
28	The teacher should never explain to students the procedures for completing a task.*	constr
29	For sustainable learning, it is imperative that students are brought to practise procedures and knowledge before solving complex problems or tasks.	expl
30	Students learn best when they follow their teachers' explanations.	trans
31	To be effective, the teacher must plan his or her lesson in a precise and non-rigid manner, based on the students' learning mechanisms.*	expl
32	Most students can find solutions to the problem tasks on their own.	constr
33	Learning is enabled by the teacher's questions and the students' answers.*	expl
34	In order for learning to take place, it is necessary to start from the students' initial representations.*	expl
35	Teaching must give priority to the acquisition of academic knowledge among students before social skills.	trans
36	Before the teacher demonstrates problem-solving procedures to students, the teacher should give them the opportunity to identify personal solutions to the problems.	constr
37	During the lesson, the teacher must first use elements that come from the students before introducing those from the official programmes.	constr
38	Students need a clear demonstration from the teacher on how to solve problems by applying the content.	expl

39	When homework is given, it is to allow the student to exercise knowledge and skills that have already been practised in class with the help of the teacher and students.*	expl
40	Learning should be based on the knowledge and skills that students already master and not on complex new tasks.	expl
41	After demonstrating the procedures to the students, the teacher should encourage work in pairs or small groups.*	expl
42	The teacher should define the objectives of each lesson before teaching.	trans (removed)
43	Allowing students to discuss their own resolution ideas helps them to understand the learning content.	constr
44	The teacher must assess the student as he or she learns.*	expl
45	A good teacher encourages students to verbalize their strategies.*	expl
46	The exercises should be organised in two stages: a first stage during which the students receive help and a second stage during which they are autonomous.*	expl
47	At school, knowledge must be learnt in a different way than natural knowledge such as walking.*	expl
48	Teachers need to communicate detailed problem-solving procedures that apply learning.	expl
49	The student must always work alone.	trans
50	It is important to focus on elements that are common to several contents/subjects if students are to learn.	expl
51	The teacher should interview all students, preferably in an equitable manner by making a random selection to determine who should answer each question.*	expl
52	During the exercises, students are autonomous, just like at the beginning of the learning process.	constr
53	Students should often be given the opportunity to reproduce the model resolutions demonstrated or explained by their teacher.	expl
54	At school, the learning context should be organised in such a way that students can identify the relationships between learning content on their own.	constr
55	Students learn best when they rephrase the teacher's explanations in their own words.*	expl
56	The homework assignment is the real moment when the pupil appropriates the new knowledge communicated in class by the teacher.*	trans
57	To be effective, the teacher must not deviate from the lesson plan that he or she has constructed using the official curriculum.	trans

58	During the lesson, the teacher can start with material from the official curriculum if he or she explains to the students why they are learning this.*	expl
59	Learning is made possible by the clearest possible presentation by the teacher.*	trans
60	The teacher should provide regular feedback to students.*	expl
61	Learning activities must always be rooted in the needs of the students.	constr
62	Students learn best when they have the opportunity to discover the solution to problems on their own.	constr
63	Mastery of the material is not essential; it is the way it is passed on that counts.*	constr
64	The student is always actively building his or her knowledge.*	expl
65	Students must first understand the contents and procedures before they are asked to practise them.	expl

Research-based Teaching and Transformative Learning to Promote Quality Teacher Education

DOI: 10.47050/66515314.170–201

Joanna Pitura

As modern classrooms are characterised by diverse educational needs and abilities, it is crucial that teachers acquire relevant competences at the professional preparation stage in order to be able to ensure equitable and inclusive learning environments for all their students. This chapter[1] addresses the issues of in/equity and ex/inclusion by combining the notions of research-based teaching and transformative learning. A study was conducted to investigate whether engaging trainee teachers – participants of an academic course – in transformative research as co-researchers can lead to transformative learning, enhancing their ability to notice and address social justice challenges in the classroom. A qualitative approach to research design and data analysis was employed in order to gain insight into students' individual experiences and perceptions as the course and research project unfolded. The findings suggest that the application of (transformative) research-based teaching, oriented towards social justice issues, has the potential to foster (trans)formative learning among trainee teachers, which can, in turn, advance teacher-candidates' professionalism, as well as equity and inclusion in the schools of today.

Key words:
transformative learning
research based-teaching
language teacher education

1 Parts of this chapter were presented at the 2018 ESREA Conference "Contemporary Dilemmas and Learning for Transformation" in Milan (Italy) and the 2019 TEPE Conference "Quality Teachers and Quality Teacher Education: Research, Policy and Practice" in Cracow (Poland).

Introduction

Modern classrooms are characterised by diverse educational needs and abilities and encompass learners with physical disabilities, hearing and sight impairments, specific learning difficulties, chronic diseases, migrant students, etc. (Olechowska, 2016). Within this context, teachers play a very important role – they are in direct contact with their students and enable (or hinder) their learning. For this reason, in order to ensure equitable and inclusive learning environments for all, teachers need to acquire the relevant competences (knowledge, skills, attitudes) at the professional preparation stage so that, in the future, they can support all their students.

In light of the above, the author of this chapter designed a research project which engaged two groups (n = 40) of English language trainee teachers – participants of the "Research Methods in Language Education" course taught by the author – as researchers. The aim of the designed project was to diagnose potential barriers and enablers in the process of learning and teaching of students with special educational needs (SEN) – foreign language learners – who attended foreign language courses offered at the university language centre. The results of the diagnosis were to be submitted to university authorities, hoping that they would be used to improve the teaching conditions for diverse students at the university. In class, research-based teaching was applied as an instructional approach in which students independently conducted authentic research activities as part of the coursework (Haaker & Morgan-Brett, 2017; Healey & Jenkins, 2009). It was recognised that through such activities, carried out under the supervision of the researcher-academic teacher, future teachers could be provided with opportunities to reflect on the issue of diverse needs in language learning and to develop empathy and the ability to support diverse learners in the future (Pitura, Leśnik, Rak, Renat & Równiatka, 2019). By engaging trainee teachers in conducting and reflecting on authentic research activities focused on social justice problems, trainee teachers could be confronted with their existing beliefs, values and practices, possibly leading to transformative learning, i.e. their perception of themselves and/or others through a new lens (Mezirow, 2009).

This study, constituting part of a larger action research project conducted in two cycles (2017/2018 and 2018/2019), set out to investigate whether engaging trainee teachers – participants

of an academic course – in transformative research as co-researchers can lead to transformative learning, enhancing their ability to notice and address social justice challenges in the classroom. The notion of research-based teaching (Haaker & Morgan-Brett, 2017; Healey & Jenkins, 2009) is combined with transformative learning theory (Mezirow, 2009) to address the issues of in/equity and in/exclusion as the areas that require attention in contemporary teacher education. This strategy was in line with the then Polish Regulation of the Minister of Science and Higher Education of January 17, 2012 on the standards of education for preparing to practise as a teacher (*Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 17 stycznia 2012 r. w sprawie standardów kształcenia przygotowującego do wykonywania zawodu nauczyciela*), stipulating that the outcomes of preservice teacher training should encompass, among others, teachers' sensitivity to ethical issues, empathy, openness, and reflexivity, as well as the ability to design and conduct diagnoses in pedagogical practice at various educational stages, including students with special educational needs (p. 2). The research data were collected from thirteen students from the first cycle (2017/2018) through a reflective story at the end of the term in order to capture the students' actions, thoughts and feelings that had appeared at various stages of the course and the research project. It was assumed that the adoption of the narrative approach and the use of storytelling for data collection would enable an insight to be gained into the student researchers' experiences in this project. Understanding students' experiences in this learning environment is crucial to the attempts to embrace social justice issues in foreign/second language (L2)[2] classrooms and to promote quality teacher education.

Related literature

The issue of trainee teachers' beliefs related to the inclusion of diverse learners in the classroom is of growing interest. Recent scholarship has addressed preservice teachers' attitudes towards inclusive education

2 Although second and foreign language education is commonly referred to as "L2" throughout the chapter, a distinction has to be made between these two contexts. The former typically involves language learning in a country where it is spoken, whereas the latter concerns classroom instruction when learning takes place in a non-target language country.

(Friesen & Cunning, 2018; Hu, Wu, Su & Roberts, 2017; Killoran, Woronko & Zaretsky, 2014; Kim, 2011), the inclusion of students with disabilities (Bialka, 2017; Rakap, Parlak-Rakap & Aydin, 2016) and students with autism (Hong, Ryoo, Lee, Noh & Shin, 2018). Other studies have focused on preservice teachers' perceptions of themselves as being inclusive educators (Tangen & Beutel, 2017), attitudes and own efficacy concerning teaching in inclusive classrooms (Gigante & Gilmore, 2018; Specht et al., 2016; Peebles & Mendaglio, 2014) and dealt with uncovering preservice teachers' learning needs while doing practicum and having contact with children with disabilities and learning difficulties (Walton & Rusznyak, 2014). Nonetheless, regarding L2 education, only a few studies have explored trainee teachers' perspectives related to the problems of student diversity, SEN, access and bias. Empirical evidence comes from research conducted in Canada with reference to the inclusion of two groups of K-12 students in mainstream education: immigrant students (i.e. those who enter the educational system as English and French language learners) and students with learning difficulties (Arnett & Mady, 2018; Mady, Arnett & Muilenburg, 2017; Lin & Lin, 2014).

The study conducted by Mady, Arnett and Muilenburg (2017) addressed the problem of unequal access to L2 language education for immigrant students resulting from unfavourable policies or practices. The study explored the perspectives of L2 teacher candidates about new coming students (whose L1 was other than English and French) and their learning needs. The data, collected from a group of Canadian French as a Second Language (FSL) teacher candidates through two questionnaires ($n = 78$ and $n = 48$) and semi-structured interviews ($n = 9$), reveal that although students' attitudes towards immigrant French language learners were mostly positive, this position did not always translate into the recognition of these students' special learning needs in practice. Given this result, the authors express doubts about whether the successful inclusion of these students in FSL classrooms is currently possible. A similar conclusion flows from a study conducted by Lin and Lin (2014) aimed at identifying Canadian teacher candidates' beliefs and professional needs with regard to classroom assessment. The study surveyed elementary and secondary teacher candidates' ($n = 295$) beliefs related to inclusive classroom assessment in mainstream schools that encompass students with special needs and English language

learners. The findings show that while most teacher candidates held positive beliefs concerning various facets of assessment, they did not have a satisfactory understanding of how these aspects can be applied in the classroom to support diverse students. In another study, Arnett and Mady (2018) explored Canadian teacher candidates' changing beliefs (perceptions, values and thoughts) about the inclusion of English language learners and students with learning difficulties in various types of FSL programmes. The researchers aimed at capturing how these beliefs evolved as novice teachers gained teaching experience, so they followed four new FSL teachers, i.e. participants of the Bachelor of Education Programme, who were interviewed once a year in their first three years after entering the teaching profession. Among other things, it was found that classroom experience with diverse students had more influence on teachers' beliefs concerning the learner fit for a particular FSL programme compared to the impact of academic courses that had been followed at the teacher preparation stage.

Taken together, these unique studies conducted in the area of L2 education show that L2 teacher candidates tend to be positively predisposed towards diverse learners but, at the same time, also indicate that their classroom practices may not necessarily lead to learner inclusion. Moreover, it emerges that academic knowledge gained through coursework is not sufficient to embrace inclusive practices by trainee teachers in their classrooms. It is direct experience with diverse learners that has more impact on teacher perceptions and ensuing classroom decision-making. These findings therefore suggest that L2 trainee teachers could benefit from the learning activities which involve direct contact with diverse/SEN students. Owing to this, future teachers can be provided with opportunities to better understand these students' potential, examine their own beliefs about these learners and modify their teaching practices.

Transformative learning

Transformative learning theory is well-positioned to foster socially responsible learning among future teachers. Jack Mezirow defines transformative learning as "the process by which we transform problematic frames of reference (mindsets, habits of mind, meaning perspectives) – sets of assumption and expectation – to make them more inclusive, discriminating, open, reflective and emotionally able to change"

(2009, p. 92). As Jeyaraj and Harland elucidate, "transformations take place as old assumptions, values, and feelings give way to new ways of knowing, seeing, and being in the world" (2014, p. 2). According to this theory, the process of transformation begins with a disorienting dilemma, followed by self-examination assisted by negative feelings (fear, anger, guilt or shame), reflection and the exploration of assumptions before a new perspective is integrated into one's individual worldview (Mezirow, 2009, p. 94). Cranton explains this process as follows: "Through some event, which could be as traumatic as losing a job or as ordinary as an unexpected question, an individual becomes aware of holding a limiting or distorted view. If the individual critically examines this view, opens herself to alternatives, and consequently changes the way she sees things, she has transformed some part of how she makes meaning out of the world" (2002, p. 64).

It appears that an event that triggers a critical examination of one's existing assumptions and expectations – "an activating event" (Cranton, 2002, p. 66) – is vital in this process (Cranton, 2002; Walker & Molnar, 2015). Activating events make it possible for disorienting dilemmas to surface and, as such, they are of special significance to educators. As James, Collins, and Samoylova posit, "if moments can transform trajectories, then as educators, we should pursue the knowledge that will help us create moments of transformation in the educative experiences that we construct" (2013, p. 247). Therefore, creating and examining the conditions in which L2 trainee teachers experience disorienting dilemmas is essential if changes in beliefs, assumptions, attitudes or practices that sustain social injustice are to be achieved.

Research into transformative learning focussing on activating events and fostering transformative learning conditions has been conducted in various educational contexts. For example, the issue of activating events has been addressed by Keen and Woods (2016) in the context of prison education, James et al. (2013) studied the use of video for triggering moments of transformation, Chen and Martin (2015) explored role-play simulations in adult environmental education, Hoggan and Cranton (2015) researched enabling transformative learning experiences through reading fiction in higher education, and Wilhelmson, Åberg, Backström and Olsson (2015) conducted an educative intervention in a workplace.

Importantly for the present study, one strand of research considered transformative learning in the context of teacher education. Nash (2013), addressing the issue of racism and marginalisation in education, reports on a study conducted within the framework of critical race theory to understand changes in thinking about the education of marginalised children among early literacy preservice teachers (*n* = 27) in the United States. Using a number of data collection techniques (a pre- and post--questionnaire about racial attitudes and dispositions, field journal notes, student reflections, artefacts including student lesson plans, class discussions about race and racism as well as phenomenological interviews), the study found three kinds of tension, i.e. the study participants raised concerns that, due to the focus on race and racism, the course neglected literacy training, and some rejected the idea that one can be biased and claimed that the issue of racism was irrelevant in their context. The focus of another study by Baily, Stribling, and McGowan (2014) was on engaging in-service teachers (their students) in the activities that develop perceptions of social justice in schools. In their graduate Master's programme of "Education for Social Change" (ESC), they applied experiential learning to generate situations in which discomfort and learning could appear among their course participants – American in-service teachers of various subjects and grade levels (*n* = 250). The data were collected for six years through student reflections, surveys, student projects and articles, and online discussions. The results provide evidence of transformation among study participants, i.e. they increased awareness as regards their status, knowledge construction and distribution, and power structures in education. In another study, Miller Dyce and Owusu-Ansah (2016) aimed at facilitating trainee teachers' cultural competence and effectiveness in working with racially, culturally, linguistically, etc. diverse students and communities. The data were collected through focus groups and surveys from two groups of American preservice – elementary and secondary education – teachers (*n* = 13 and *n* = 15) enrolled on a diversity course in a teacher education programme. Their research found that diversity education triggered an increase in preservice teachers' knowledge about diversity, critical reflections on their teaching practices and transformative learning. The researchers conclude that the offered diversity course allowed the students to develop into "advocates for

social justice, equity, and social change for students and families" (2016, p. 25).

Notably, transformative learning has rarely been considered in the L2 learning area. In one of the few studies, Morgan (2009) dealt with the issue of developing transformative English for Academic Purposes (EAP) preservice teachers. His research focused on teachers' new role options and problems related to assuming the role of transformative practitioner for critical EAP. The article provides an overview of an Issues Analysis Project (IAP), a final group assignment for a course called "Socio-Political Issues in Second Language Education" in which students planned transformative action, and summarises two student projects. These projects showed that, despite the fact that students had struggled while designing their projects due to institutional, pedagogical and team working difficulties, student awareness related to change and being a transformative practitioner increased, indicating that this type of project activity can "redress the shortcomings of critical pedagogies" (Morgan, 2009, p. 95). Another example of research concerning transformative learning within the L2 learning context was conducted by Jeyaraj and Harland (2014). The study centred on academics who applied critical pedagogy in English language teaching and aimed at gaining insight into how the application of critical pedagogy in their teaching practice impacted their lives and those of their students. The data were gathered through semi-structured interviews with thirteen academic teachers from Canada, Hong Kong, Korea, Malaysia, New Zealand, the United Kingdom, the United States, and Turkey. The findings reveal that these academics encountered many unanticipated moments, which affected their personal and professional spheres. These moments were associated with intense emotions, personal risk and isolation, and critical reflection among academics. As regards the impact on their students, the courses were reported to have a transformative power with reference to students' worldviews, their lives outside of academia, and learning the English language. Importantly, it was found that the ideas explored in the course served as a meaningful vehicle through which the language was learnt.

Overall, prior scholarship indicates that teacher educators, by applying an ethical lens in their courses, can afford space for transformative learning to emerge. Therefore, it seems desirable and viable for L2 educators to offer L2 trainee teachers unique educational

experiences that generate dilemmas and stimulate reflection on social justice problems, ultimately leading to shifts in existing perspectives and "new ways of knowing, seeing, and being in the world" (Jeyaraj & Harland, 2014, p. 2). Yet, as this process can be fraught with emotional, organisational and pedagogical challenges for both L2 instructors and trainee teachers, the creation of the learning environment for L2 trainee teachers requires reconsideration.

The present study proposes that transformative research (more details in the next section) is compatible with transformative learning when the purpose is to develop L2 teachers who are "more inclusive, discriminating, open, reflective and emotionally able to change" (Mezirow, 2009, p. 92). Following Patricia Cranton, who noted that "[i]n teaching for transformation, teachers set the stage and provide the environment in which students can articulate and critically reflect on their assumptions and perspectives" (2002, p. 63), this study uses transformative research to support transformative learning among L2 trainee teachers. In so doing, it is hoped to ensure the learning environment in which it is possible to generate genuine disorienting dilemmas and to reveal "blind spots" (Morgan, 2009, p. 87), as well as inadequate assumptions and expectations that are at the heart of transformative learning, potentially sensitising L2 trainee teachers towards the problem of diverse L2 learner inclusion.

Description of the research-based course in 2017/2018

A "Research Methods in Language Education" course was a fifteen--week research-based learning experience for a group of thirteen English Studies students doing their Master's degree in English language teaching. Recognising the significance of stimulating socially-responsible learning (Van Boxtel, 2018) among L2 trainee teachers, lecture-based teaching was abandoned and, instead, a series of scaffolded diversity-responsive educational and research activities was designed and delivered. In their first class, course participants were invited to join the designed research project as researchers.

The designed research project the students became part of adopted the transformative approach, as the aim was to attend to the issues of bias and to increase social justice (Mertens, 2010a; Sweetman, Badiee & Creswell, 2010) with reference to diverse L2 learners. This research paradigm is considered to help with empowering disadvantaged groups

and has been adopted by researchers who take an interest in human rights (Mertens, 2010a, 2010b). These researchers position themselves as advocates of marginalised or oppressed individuals/groups and orient their research towards making the voice of such individuals heard and bringing about change through improving the lives of these individuals (Creswell, 2009, p. 9). Various theoretical perspectives frame this paradigm, including feminist, race, critical, queer, and disability theories (ibidem). As regards the researchers who work within the disability strand, they are preoccupied with the inequalities that exist for people with various disabilities. As Connor and Gabel put it, "they are troubled by general cultural values which inform practices that continue to actively disable people" (2010, p. 205). Domagała-Zyśk (2013, pp. 140–141), following Barnes (2003), lists the features that characterise disability research:

1. The researcher should be characterised by an attitude of ethical responsibility for the conducted research and the good of the people participating in it.
2. Research is conducted within the framework of the social disability model.
3. Research is characterised by objectivity... The researcher must be aware that his/her judgements are influenced by his/her personal experiences, language and theories s/he uses, but at the same time s/he cannot neglect to care for an objective presentation and analysis of research results.
4. The starting point in research is the experience of people with disabilities, because each of them has their own unique life history, conditioning their current position in life and achievements.
5. The results of the research should be made available and serve the group from which the persons participating in the research originate, and it is therefore postulated that both during and after the research, the persons participating in it should have full insight into the research procedures, results, methods of data interpretation and conclusions.

What is more, conducted within participatory action research, transformative research requires the involvement of the people participating in the study at the stages of planning, conducting, analysing and interpreting data obtained in the survey (Mertens, 2010a, p. 33).

Importantly, study participants are not treated as the objects of examination but as active partners (Domagała-Zyśk, 2013). This type of research allows, therefore, a better insight to be gained into the community's experiences, which is not feasible by employing other research methods. The results of such research may have an empowering effect on diverse students in L2 learning as it has the potential to increase their agency within the L2 learning activity. Additionally, the findings obtained in this manner may better inform the design of more equitable L2 instruction.

Accordingly, the aim of the research study co-conducted with L2 trainee teachers was to explore the barriers and enablers in language courses offered to diverse students at the university. The outcome of the research, i.e. a research report summarising the obtained findings and listing recommendations (including educational/assistive technology solutions to support diverse students' language learning), was to be submitted to university authorities. In the first year of the project – the focus of this study – the research team, apart from the L2 trainee teachers, also comprised four university students with diverse needs, whose involvement as experts was considered to be essential in the process of creating research tools and interpreting the obtained results. Additionally, the study was carried out in co-operation with the Office for Students with Disabilities (who enabled contact with the diverse students from various departments) and the university language centre (who made it possible for the research team to observe English language classes that hosted students with diverse needs).

After introducing the students to the research project, research procedures and the timeline, six teams of 2–3 students were formed and each team chose their team leader. Next, each team drew a group of L2 learners with a different SEN to work with throughout the semester: (1) hearing-impaired students, (2) visually-impaired students, (3) students with chronic diseases, (4) students with physical disabilities, (5) students with learning differences such as dyslexia, dysgraphia, etc., and (6) migrant students. Each team was to contact three students with a given need as interviewees and one student with diverse needs (recruited by the lecturer, the author of the chapter) who would join the team as a researcher-expert to help design research tools and interpret and analyse the obtained data.

Throughout the semester, each course class consisted of three major parts: (1) a weekly briefing during which teams reported on the progress and problems encountered in the project, e.g. recruiting participants, conducting interviews, etc.; (2) writing research journals; and (3) a research methods theory block correlated with the research stage, which provided the students with the relevant theoretical background and research tools. All course assignments were conducted by the students outside the classroom and included: (1) team-assignments: preparing interview protocols, conducting interviews, transcribing the interviews, generating items for the survey, and case analyses; and (2) individual assignments: going to observe an English class for hearing-impaired students[3], submitting ethnographic observation notes from this observation, and a reflective piece of writing (a story). The course finished with a written exam covering the theory of research methods in L2 education.

Method

Aim of the study

The aim of this action research (Cherry, 2002) study was to investigate whether engaging L2 trainee teachers – participants of an academic course – in transformative research as co-researchers can lead to transformative learning, enhancing their ability to notice and address social justice challenges in the classroom. Specifically, the purpose was to explore the conditions catalysing the transformative processes and to identify the outcomes that emerged owing to this experience. The following research questions were formulated:

1. What conditions prompted transformative learning?
   a) Did the students experience disorienting dilemmas?
   b) What type of event activated disorientating dilemmas in the students, if any?
   c) What type of dilemma did the students experience, if any?
   d) What feelings accompanied the experience of a disorienting dilemma?

3 Study participants – L2 trainee teachers – observed L2 classes for hearing-impaired students only. It was acknowledged that arranging observations in the groups with other SEN students would be a valuable experience; however, in practice, it was difficult to organise other sessions due to the problems related to gaining access to such classes. Permission for classes to be observed was granted only by one L2 teacher.

2. What new ways of knowing, seeing, and being emerged as a result of being engaged in an authentic advocacy research inquiry, if any?

Participants

The participants were thirteen trainee teachers (ten female and three male) at a Polish university. They were students of English Studies doing their Master's degree in L2 digital teaching. In autumn 2017, they enrolled in "Research Methods in Language Education" – an obligatory 30-hour academic course. The class met once a week for 90 minutes. The students had prior experience of teaching English but no experience of doing L2 research.

Data collection instrument

At the end of the semester, as the research project was drawing to a close, the students were invited to reflect on their experiences of the course and the project. They were instructed to write a story – in the first person – with a beginning, middle and end, including their actions, thoughts and feelings as they appeared at various stages of the course and research project. In the stories, the students were asked to include their reflections on the following:

1. A description of our first class and learning about doing research for and with SEN students – what they thought and felt back then;
2. What their beliefs, values, assumptions, and practices were before our first class regarding SEN students and doing L2 research, L2 learning and teaching;
3. What happened after the first class, and what they did/thought/felt throughout the course and the project regarding SEN students, doing L2 research, L2 learning and teaching;
4. What they learnt in this class as a result of the project;
5. What changes they observed in their views regarding SEN students and doing L2 research, L2 learning and teaching.

Data analysis

In this study, the qualitative approach to study design and data analysis is employed in order to gain insight into students' individual experience, perceptions and behaviour as the course and project unfolded.

Transformative learning theory is used as an analytical framework, and a content analysis is applied to explore and interpret student stories.

The content analysis was conducted in a series of steps. The first step – the pre-coding stage – involved getting familiar with the students' stories, i.e. reading and rereading the texts to obtain a general understanding of the data and to identify broad themes that emerged in the stories. In an attempt to capture the emergence of disorienting dilemmas among the students, the moments when "an individual becomes aware of holding a limiting or distorted view" (Cranton, 2002, p. 64) were considered. Finally, the research sought evidence of new knowing, new seeing, and new being. Next, the stories were uploaded to a piece of qualitative analysis software (QDA Miner Lite, Provalis Research) for further analysis. The initial coding stage involved assigning chunks of text to one of the labels identified at the previous stage. At the second-level coding stage, the structure that emerged within a single category was investigated and codes were assigned to these entities. Finally, the categories were ordered to describe the hierarchy in the data (Dörnyei, 2007). The quotes from students are verbatim reproductions and minor changes have been made to improve the English.

Results

Disorienting dilemmas as triggers for transformative learning

This section outlines the findings concerning the precondition – disorienting dilemmas, i.e. the moments when "an individual becomes aware of holding a limiting or distorted view" (Cranton, 2002, p. 64) – that prompted learning among study participants. Firstly, evidence for student experiences of disorienting dilemmas is provided, followed by an overview of the type of event that activated disorientating dilemmas in the students. Next, the different types of dilemma as experienced by the students are described. The section ends with an elaboration on the identified feelings that accompanied the experience of a disorienting dilemma.

Data provide evidence for the moments of a disorienting nature for the students, as voiced in the statement below:

We observed English classes of hearing-impaired students and it was something that I could not imagine. We sometimes complain about our lives, about not being able to do something, or having been forced to do something we do not want to, but those people have real problems. [Those] *classes opened my eyes.*

Furthermore, it was found that disorientation was activated at various points in time, ranging from the first class to further on, when students conducted scheduled research activities. During the first class of the course, i.e. when the course and the research project were introduced, individual students experienced disorientation at different moments, i.e. on hearing about having to conduct real research, being informed about the focus of the study, being assigned a SEN group, or being chosen as a leader. While observing the lesson for the hearing impaired, the students also experienced disorientation, i.e. when seeing hearing-impaired L2 learners, seeing a sign translator and seeing students who were not using computers in class. Conducting interviews was yet another moment that catalysed disorientation among the students. Finally, revealing moments emerged as the project continued and included preparing for the interviews and receiving an email from a SEN student. Additionally, some students' accounts reveal that individual students experienced a number of activating events at various stages of the project/course. For example, one student writes about four such events: on hearing about having to conduct real research, on being assigned a SEN group, on preparing for the interviews, and on observing a class for hearing-impaired students.

It appears that the students experienced dilemmas related to their own capabilities, SEN students and in-service L2 teacher competencies, as elaborated on below.

The dilemmas concerning students' own capabilities emerged during the first class of the course at different moments and – notably – were not immediately resolved. First and foremost, the detected disorientation relates to students' perceived inability to conduct research due to a lack of knowledge, skills and experience, which appeared in some students on hearing about having to conduct real research, as exemplified by one student: "Yeah, fine... Wait, what? I do not know how to conduct research! I do not even know what it means! What am I doing here?!" Secondly, doubts related to their own efficacy emerged in response

to being informed about the focus of the study, i.e. SEN, as some students reported not being sufficiently familiar with the area in order to conduct research, e.g. "I was both excited and worried about working with SEN student, as on the one hand we had a chance to make their lives easier (at least during the lectures) but I did not want to disappoint them". Next, on being assigned a SEN group to work with, one student wondered about her ability to communicate: "How would we manage to conduct our interviews with hearing-impaired students if they do not hear and some of them may not be able to speak as well?" Finally, one student pondered on his efficacy as a team leader.

The next group of revealed dilemmas are associated with SEN students and were activated mainly during the interviews and observations. Two students were confronted with new information about SEN that was in clear opposition to their existing knowledge, e.g.:

I was impressed and shocked. Impressed by those people, their attitude towards life and learning and how smart and well-prepared they were. Shocked, because of what I have found out from the interviews – how many obstacles they have to overcome in the learning process, which is very often not adjusted to their needs and requests.

Two other students, expecting to hear about problems and complaints, learnt otherwise, e.g. "She was happy to be doing what she does and that was pretty much it. No real struggles, no teacher--demons, no nothing. Good for her, though!" Two students observing the class reported moments of illumination, e.g. "When I saw the students and I realised the level of difficulties they have to face every day". Other students' accounts reveal unawareness, such as when they were assigned a SEN group: "At first I was like: 'How do even migrant students have any special educational needs?'" or when they were informed about the focus of the study: "Why is it important? Do we have a lot of students with SEN? I did not know anybody with SEN and haven't seen [any] in our department". Finally, dilemmas that emerged while students conducted their research activities included the disclosure of limited views about SEN students: "[B]efore actually doing them [the interviews], I was afraid that people would not be willing to share their problems, weaknesses..."

A number of distorted assumptions about L2 teachers' competences working with hearing-impaired students have been found. The students' accounts revealed their belief that teachers working with SEN students are knowledgeable about the specificity of this group and have the pedagogical skills that foster learning, which appeared to be false. For instance, during the observations, one student realised that "There was nothing special in it [the lesson for hearing-impaired students]", while another student noticed that "I have always thought that the teacher should know sign language".

The words of the participants indicated that facing disorienting dilemmas was very intensive emotionally. The data revealed that students experienced many strong negative emotions, or mixed feelings at best. It appears that, at various points, individual students were scared or afraid, worried, shocked, guilty, struck/surprised, confused and disappointed. Mixed feelings found in students' accounts include panic and excitement, being surprised and frightened, being excited and terrified, excited and worried, and impressed and shocked.

New knowing as input for reflection

The data suggest that new knowledge emerges as a result of hands-on experience in various research activities and interactions with the people involved in the project. In particular, the students reported they had gained new knowledge with regard to the project, about conducting research, and about SEN students, as well as about SEN teaching and learning, people in the project, and technology.

Concerning the project, not surprisingly, it turned out to be a novelty for the students. During the first class, the students found out about the project's aim and procedures as well as their special role – being real researchers. This was of great significance for the students, as voiced by one of them:

The realisation that I am a part of [some] *research that can actually greatly influence a lot of people. Since in the long run the results that we produce might turn out to be applicable to other universities as well, it might turn out that we are creating something that will change the process of studying for students all across Poland.*

As to the knowledge about research, the data provide evidence of student learning about the theory and practice of conducting research. Two students reported learning about the theory of research, research design and procedures, which mostly happened in class via presentations: "I learnt about the theory, the risks, the advantages and [the] disadvantages of different research methods as such. I am quite happy to have learnt all this – I know I will need it all for my Master's thesis". Three students indicated that they gained competence in conducting research, as exemplified by the following quote:

Thanks to this project, I guess, I might have an idea [of] *what it takes to prepare and conduct* [research]. *Owing to* [this], *I would know where to look for help and what to consider to ensure it was credible.*

Next, the students learnt that transcribing interviews is tedious and time-consuming and that transcription software can be complicated, yet transcribing the interviews helped them focus and get a better understanding of SEN students. Finally, individual students acknowledged the qualities of a good researcher in their accounts: "I realised that various obstacles appear [in] the way of a researcher and that, when it happens, patience as well as obstinacy are of great help for them".

New knowledge related to SEN students was obtained mainly through interviews and observations. The students had an opportunity to meet SEN students and to get to know them personally through "meaningful conversations". As revealed by one student: "The girl turned out to be very kind and sweet. She also appeared to be very well--behaved, modest and soft-spoken". Secondly, the students learnt about SEN students' feelings related to meeting SEN students:

She also told us that she was really nervous before the meeting because she thought that she was going to speak with some university authorities and that she would have to use very sophisticated language and be careful about what to say.

Many students emphasised SEN students' reactions and their appreciation of the conducted research:

She said that [...] *the questions are very good and we can really make a change for special educational needs students at our university, and maybe outside it as well. She hoped that other people would take our research seriously and respond honestly but reminded us about the need to ensure those students about the anonymous character of interviews. She was very helpful and enthusiastic about the whole research.*

Another student noted: "Without any [doubt], the issue was important for them and they wanted to do their best to provide us with all the necessary information".

Notably, the students also came to realise that some SEN students were reluctant to participate in the study, despite their initial consent: "[T]he SEN students seem like they do not want any help from us, at least most of them". As one student elaborated,

This was really frustrating. I am not sure how I should describe my feelings connected with this situation, because I felt equally frustrated, upset and sometimes I even felt as if I was wasting my time, especially when I realised that I am doing it to help these students and (even after sending several emails) nobody answered because (as I thought) they just did not care... What is more, our co-researcher was somehow assuring us in our beliefs.

Finally, the students learnt about SEN students' daily struggles:

She told us that she was not sure till the last moment if she should attend the meeting, because she was also uncertain if she would manage to come – normally she has classes somewhere else... and she was uncertain if she would manage to find the way.

The next category of new student knowledge is related to SEN students' learning and teaching. The students got familiar with how SEN students experience difficulties while learning L2, as was reported in the interviews:

One of our interviewees has a problem with his hands and legs, therefore writing during a lecture is a problem. Without talking to him, I immediately [thought] *that using any digital tool would be beneficial, but thanks to the face-to-face conversation, I have understood that using* [a computer] *might also be problematic.*

Besides, the students learnt a lot during the lessons for hearing-impaired students, i.e. first, what a lesson for such students looks like, and second, about SEN L2 learning difficulties, as exemplified by this quote: "Observing their co-operation with [a] sign language translator, I could notice how difficult and time-consuming [it is to teach] special educational needs students".

The students also noticed SEN L2 teachers' struggles, i.e. how difficult it is to teach SEN students:

I say that even though a lot of [things] *were done in order to help those students, much more could and should be done because this lesson in my opinion was not as beneficial for them as it could be.*

The next category of new knowledge involves the recognition of the different roles various people played in the project. Firstly, the students noticed how much could be learnt through teamwork. This was possible when other teams' problems were shared during the briefing sessions in every class. This brought about the realisation that "[w]orking in teams is very beneficial, because exchanging ideas gives a lot to the project". The students also realised that teams' experiences varied: "It was often so surprising, and I must admit that our experiences were so different". What is more, the students learnt that problems could be overcome when solved together:

At some point, I had this feeling that it might not be done as there were [elements] *which were not dependent on us at all, but slowly, step by step, when putting our heads together, we found the needed solutions.*

The significance of the SEN student expert was also acknowledged, e.g. "I learnt the importance of the co-researcher, who provides inside

information on the topic" and "how potent information gained straight from the source is".

Finally, the students discovered new aspects related to technology, which is important knowledge for them, bearing in mind their specialisation is L2 digital teaching. Specifically, the students indicated a new understanding of the role of technology in education, e.g. "I am convinced that the use of technology in their course would certainly improve their learning experience. Classes would seem more appealing and they would understand more of the material presented". Secondly, the students also now have new knowledge concerning assistive technology: "She showed us her Braille machine, a typewriter with which she works during her classes".

New seeing – a consequence of new knowing

The accounts indicate that, as students gain new knowledge, they see things differently and see more as regards SEN students and conducting research.

As for the issues related to SEN, five students revealed the existence of areas of their unawareness, e.g. "Maybe it is a shame to admit this but I did not keep those students in mind because I've been teaching only regular students with no SENs so far". Another student pondered:

Doing a research study might sometimes bring about various emotions, especially when the participants of a study are honest and reveal their real thoughts and feelings. It is especially valuable nowadays, when we are in [a] *constant hurry and do not have enough time to observe and think. It often happens that we are* [so] *focused on our own lives and duties that we simply do not notice other people's needs.*

Four students indicated a change in their perception of SEN students, their problems and their diversified needs, e.g. "Now I am more aware of their situation which makes me glad because it is very probable that one day I will start teaching a SEN student" and "I am [...] positively surprised by how open and enthusiastic they are/were, at least those who took part in our project as interviewees have been incredibly helpful, insightful and open". Four students also realised their own inadequate understanding of SEN students' learning difficulties, e.g.:

I did not expect them to have serious problems as their brains [function] *like any other. When I thought about people with physical disabilities, I had only those* [in] *wheelchairs in my mind. Of course, I was wrong. When I arranged interviews, everything became clear.*

One student perceives injustice for SEN students now: "[V]ery often they are not given the opportunity to attend classes with the whole group and are separated or the other way round". Finally, one student, himself being dyslectic, saw SEN from a different angle: "While I can see learning from the perspective of a student with dyslexia quite easily, it is a completely different matter when it comes to other special educational needs".

Having gained new insight into the extent and specificity of SEN students' problems, the students noticed an urgent need to take action to improve SEN students' learning. Firstly, the students noted the importance of sensitising society to the situation, e.g. "I realise ... how important it is to make people aware of the situation and to help them change it". Other students highlighted a need to take steps to change the educational system to support SEN students' learning, including the adoption of technology to improve achievement in this student group. Finally, two students indicated a need for teacher training: "Now I know that SEN students in regular classes would benefit if teachers knew more about their struggles. I believe that training in modern technologies would not only help teachers but more importantly students".

The students also appear to have experienced a change in their perceptions of research and researchers. Four students realised that research can be useful and beneficial: "I think that our research was a great thing. I hope that it is actually going to help and have some impact on [the] university". Three students now perceive research as practical, needed, worthy, important and powerful, e.g. "This class has shown me that doing [research] is not only the next step in writing e.g. a thesis but it is a powerful tool through which I can discover the serious needs of other people and notice real problems". One student elucidates that:

The lesson with hearing-impaired students made me realise that there is an incredible need for research into this issue as the results presented by those students right now are still far from the point where they could be called satisfactory.

Without further inquiry into their thought processes,
how their learning is influenced by their special educational
need and how our actions influence those matters,
we will not be able to help them achieve their full potential.

Finally, one student is now more appreciative of researchers' work: "I can appreciate the work done by other researchers a lot more when I consider how much has to be done in order for the final result [to] be as close to perfect as possible".

New being – actuated by new knowing and new seeing

The obtained data allow it to be ascertained that the students have undergone a change as a person, as a teacher and as a researcher, this being triggered by the knowledge and skills that the students had gained throughout the project, as well as by the new meanings and understandings they had developed.

Individual students reported that they became more enquiring: "Our classes made me more curious [about] the world and who knows, maybe in the future I will conduct my own study", and that they feel stronger: "I do feel really empowered to improve my teaching methods and techniques due to special educational needs students", and fascinated: "What fascinates me is that with the use of digital tools we can enormously enhance SEN students' learning processes". Two students reported becoming more determined: "I learnt [...] that regardless of what happens, it is always worth trying. If we had given up, we would not [have obtained] all the data we have right now". One student revealed feeling more empathetic: "[W]e – as a whole group – came close to the problems of people who are sometimes forgotten in [society] and the research proved that they do have needs and we can do something to help". One student reported being more confident and open: "Interviews with visually-disabled students and observation of [the] hearing-impaired class were especially valuable for me. I learnt so much from them. I believe that it made me more confident and open to people".

As teachers, the students appear to be more thoughtful, considerate and ready to adjust their teaching to SEN students, and they are also willing to find different solutions, as stated by one of the students: "I will certainly think more about students with special needs and when

starting my career as an English teacher at school, I will undoubtedly use some of the ideas and techniques that I learnt during the whole project". One student is now more eager to develop professionally: "I definitely want to learn more about how to make the English lessons as effective as I can". Two students pondered on the issue of teacher awareness and perceptiveness, e.g. "A teacher had to be aware of different special educational needs and know that each student is different and may struggle, not always saying it aloud".

The students' accounts also indicate that now they identify themselves with researchers, e.g. "A few years ago I was interviewed by one psychology student on the topic of self-esteem. That was a very inspirational experience and a few years after I could see how it is to be on the other side".

Discussion

The action research study presented in this chapter was instigated by the L2 teacher educator – the author of the present chapter – in an effort to make L2 classrooms a better place through learning and development (Kearney, Wood & Teare, 2015; Cherry, 2002). Addressing inequalities in modern L2 education and advocacy for the disadvantaged was deemed imperative and achievable through promoting equitable and inclusive teaching practices and decision making among L2 trainee teachers. L2 teachers are likely to face inequity and bias in their own classrooms and, therefore, at the preparation stage, they need to experience and explore these problems in order to be able to act as advocates for disadvantaged students, should the need arise. Course activities were designed and implemented in order to allow L2 trainee teachers to experience being a researcher in an authentic advocacy research inquiry and having the issues related to educational marginalisation or bias brought to their attention. The notion of transformative research was combined with the theory of transformative learning to study the situations in which the students experienced disorienting dilemmas, confronting their potentially distorted or limited beliefs and assumptions. It was assumed that the course and project activities had the power to facilitate transforming learning by challenging the students to examine their values, to revise their classroom practices, and, possibly, to identify areas of unawareness or bias.

University teaching needs to address the issue of values in teacher education, democracy and co-operation (Turula, 2018). L2 teachers, including trainee teachers, certainly need to consider these issues, i.e. they need the experiences and ideas to stimulate reflection, which might, in turn, have an impact on their (future) professional practice. The study demonstrates that students' reflections were not triggered by one uniform activating event. Instead, the project serves as a multifaceted environment that provides a differentiated space for the emergence of various disorienting dilemmas, appearing as the course and project unfold. Not surprisingly, learning unfolds as an individualised process, and the outcomes that emerge from this learning experience depend on students' previous experience and knowledge, as well as the experiences and knowledge they develop in the course of the undertaken action. Disorientation is catalysed by various events at different points in time, numerous and intense emotions appear, and individual students use different strategies to deal with the tensions. These findings hence support the claim made by Hawkins and Norton on the inadequacy of one-size-fits-all approaches to critical teacher education by highlighting the fact that practice is "situated, responsive, and contextual" (2009, p. 37).

The data show that some transformative processes were triggered as a result of students' being engaged in the scaffolded research activities and include interacting with the people involved in the project and gaining new knowledge and skills while conducting the research. This formative stage provided the input for reflection, which was crucial for transformative learning to take place. The results indicate that by becoming real researchers and by having the opportunities to witness SEN L2 lessons and to listen to stories of SEN students' struggle, the student researchers had plentiful opportunities to put their existing assumptions into question and to identify gaps, areas of unawareness or misconceptions about themselves and others. Specifically, their dilemmas revealed that they had had limited views about research and their own capabilities, distorted views about SEN students, and some idealised or false assumptions about L2 educators. This is a similar finding to that obtained by Arnett and Mady (2018), who found that new teachers' perceptions on inclusion, values and thoughts alter as a result of being in direct contact with diverse learners.

Students' words also indicate that experiencing dilemmas and troubling thoughts involves a lot of emotional effort. The emotions and feelings associated with such moments are mostly negative, as asserted by Mezirow (2009). However, evidence of positive affect, though inseparable from negative emotions, was also found. This corroborates the findings obtained by Jeyaraj and Harland who, portraying "emotional upheaval" (2014, p. 4) in critical pedagogues, identified contrasting and intense affective states, such as panic, insecurity, confidence, fear, and worry.

The data imply that students come out of the project with new knowledge and skills. This constitutes an essential part of student formation at this educational level and – importantly – provides input for reflection that appears to be vital for transformative processes to be initiated. The students acquired knowledge through their activity as researchers, and they came to understand that they were part of an initiative that could make a change locally and hoped for a change in the national educational system. This had a great impact on their attitude – they felt empowered, stimulated and inspired.

The students also report developing research skills, which is important for their future professional practice as these skills allow teachers to play an active role in analysing and improving the learning and teaching conditions in their classrooms (Elmas & Aydin, 2017). As described earlier, the students had an opportunity to go through the whole research cycle, encounter the problems and frustrations inherent to this process, and experience the satisfaction achieved when others appreciate their work and when new knowledge is produced. This is consistent with the findings obtained by Elmas and Aydin (2017), who found that preservice teachers engaged in research gained research content knowledge, research skills, and target language proficiency, while the encountered problems include the research process itself, the context (time, place and people) and language proficiency. Similar findings are reported in the study by Wyatt and Pasamar Márquez (2016), who conducted exploratory action research in order to support their first-year Applied Languages students in language research. They found that the students gained knowledge about research tools, developed a practical understanding of conducting research, and increased their curiosity about language.

The data in the study point out that new knowing constitutes vital input that can stimulate student reflection. Reflexive thought processes, in turn, appear to trigger shifts in meaning perspectives and result in expanded perception (new seeing) and new being. It becomes evident that the students have been given a considerable boost in self-confidence, many feel empowered as researchers, leaders, communicators, and L2 teachers, and many also have an increased sense of agency and interest in self-development. These findings echo these obtained by Walker and Molnar (2013), whose research suggests that involving secondary school students in authentic science research was a transformational learning experience, resulting in changes in students' viewing of others – i.e. scientists – and themselves as being capable of conducting a scientific investigation.

The study suggests that transformative research holds the potential for transformative learning within higher education, in particular L2 teacher education. University teaching may recognise that L2 teacher trainees need to be aware of biases or exclusions of various natures in school settings so as to be able to promote sustainable teacher behaviour in schools in the future. By employing transformative research and transformative learning theory, teacher educators can facilitate students' thinking about social issues and promote activism aiming at ameliorating L2 learning conditions for individual students in educational settings. As presented in this chapter, a hands-on experience in an advocacy research project can address these issues and can have an impact on the perspective change or expansion needed to promote teachers' inclusive practices in schools. By being engaged in research and advocacy with and for SEN students, L2 trainee teachers can be provided with opportunities to confront and challenge their existing beliefs and values, leading to the reframing of their thinking about the L2 education of SEN students.

The potential contribution of this study is that it outlines the design and implementation of an educational intervention that has the potential to bring about meaningful learning among L2 trainee teachers. The study has shed light on how educators can support L2 teachers' development of their role as empathetic, knowledgeable and skilful L2 inclusive teachers who are aware of the diversity of learners' needs in their classrooms, who feel competent in conducting research in order to detect various needs and to implement appropriate

or remedial teaching strategies, and who have a sense of purpose and worthiness of their actions. However, while implementing such interventions, care must be taken as students become extremely vulnerable to experiencing intense emotions, and teacher educators need to find ways to support the students in this respect.

Conclusion

Recognising the importance of inclusive L2 education and attending to the problem of teachers' (limiting or distorted) beliefs concerning teaching diverse L2 learners, this study has depicted how engaging L2 trainee teachers in authentic advocacy research activities has the potential to address trainee teachers' perspectives concerning the issues of social and educational access, bias and equity. The study suggests that the application of (transformative) research-based teaching, oriented towards social justice issues, has the potential to foster (trans)formative learning among trainee teachers, which can, in turn, advance teacher candidates' professionalism as well as equity and inclusion in the school of today. It is hoped that the study will help researchers understand what happens when L2 trainee teachers become researchers/advocates trying to make school/university a better place for all learners.

References

- → Arnett, K and Mady, C. (2018). The Influence of Classroom Experience on Teacher Belief Systems: New French Second Language Teachers' Beliefs about Program Options for English Language Learners and Students with Learning Difficulties, *McGill Journal of Education/Revue des sciences de l'éducation de McGill*, *53*(3), 590–611.
- → Baily, S., Stribling, S.M. and McGowan, C.L. (2014). Experiencing the"Growing Edge" Transformative Teacher Education to Foster Social Justice Perspectives, *Journal of Transformative Education*, *12*(3), 248–265.
- → Barnes, C. (2003). What a difference a decade makes: reflections on doing "emancipatory" disability research, *Disability and Society*, *18*(1), 13–17.
- → Bialka, C.S. (2017). Understanding the factors that shape dispositions toward students with disabilities: a case study of three general education pre-service teachers, *International Journal of Inclusive Education*, *21*(6), 616–636.

→ Chen, J.C. and Martin, A.R. (2015). Role-play simulations as a transformative methodology in environmental education, *Journal of Transformative Education*, *13*(1), 85–102.
→ Cherry, N. (2002). *Action Research: A pathway to action, knowledge and learning*. Melbourne: RMIT University Press.
→ Connor, D.J. and Gabel, S L. (2010). Welcoming the unwelcome: Disability as diversity. In: T. Chapman, N. Hobbel (eds.), *Social justice pedagogy across the curriculum* (pp. 201–220). Mahwah: Erlbaum.
→ Cranton, P. (2002). Teaching for transformation, *New directions for adult and continuing education*, *2002*(93), 63–72.
→ Creswell, J.W. (2009). *Research Design: Qualitiative, Quantitative, and Mixed Methods Approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.
→ Domagała-Zyśk, E. (2013). *Wielojęzyczni studenci niesłyszący i słabosłyszący w procesie uczenia się i nauczania języków obcych*. Lublin: Wydawnictwo KUL.
→ Dörnyei, Z. (2007). *Research Methods in Applied Linguistics. Quantitative, Qualitative, and Mixed Methodologies*. Oxford: Oxford University Press.
→ Elmas, E. and Aydin, S. (2017). Pre-service foreign language teachers' perceptions of research skills: A qualitative study, *The Qualitative Report*, *22*(12), 3088–3101.
→ Friesen, D.C. and Cunning, D. (2018). Making explicit pre-service teachers' implicit beliefs about inclusive education, *International Journal of Inclusive Education*, 1–15.
→ Gigante, J. and Gilmore, L. (2018). Australian preservice teachers' attitudes and perceived efficacy for teaching in inclusive classrooms, *International Journal of Inclusive Education*, 1–10.
→ Haaker, M. and Morgan-Brett, B. (2017). Developing Research-Led Teaching: Two Cases of Practical Data Reuse in the Classroom. *Sage Open*, *7*(2), 1–9.
→ Hawkins, M. and Norton, B. (2009). Critical Language Teacher Education. In: A. Burns, J.C. Richards (eds.), *The Cambridge Guide to Second Language Teacher Education* (pp. 30–39). Cambridge: Cambridge University Press.
→ Healey, M. and Jenkins, A. (2009). *Developing undergraduate research and inquiry. Report*, www.heacademy.ac.uk/system/files/developingundergraduate_final.pdf
→ Hoggan, C. and Cranton, P. (2015). Promoting transformative learning through reading fiction, *Journal of Transformative Education*, *13*(1), 6–25.
→ Hong, S., Ryoo, J.H., Lee, M., Noh, J. and Shin, J. (2018). The mediation effect of preservice teacher attitude toward inclusion for students with autism

in South Korea: a structural equation modelling approach, *International Journal of Inclusive Education*, 1–18, DOI: 10.1080/13603116.2018.1449021

→ Hu, B.Y., Wu, H.P., Su, X.Y. and Roberts, S.K. (2017). An examination of Chinese preservice and inservice early childhood teachers' perspectives on the importance and feasibility of the implementation of key characteristics of quality inclusion, *International Journal of Inclusive Education*, *21*(2), 187–204.

→ James, D.M., Collins, L.C. and Samoylova, E. (2013). A moment of transformative learning: creating a disorientating dilemma for a health care student using video feedback, *Journal of Transformative Education*, *10*(4), 236–256.

→ Jeyaraj, J.J. and Harland, T. (2014). Transforming teaching and learning in ELT through critical pedagogy: An international study, *Journal of Transformative Education*, *12*(4), 343–355.

→ Keen, C.H. and Woods, R. (2016). Creating activating events for transformative learning in a prison classroom, *Journal of Transformative Education*, *14*(1), 15–33.

→ Kearney, J., Wood, L. and Teare, R. (2015). *Designing Inclusive Pathways with Young Adults: Learning and Development for a Better World*. Rotterdam: Sense Publishers.

→ Killoran, I., Woronko, D. and Zaretsky, H. (2014). Exploring preservice teachers' attitudes towards inclusion, *International Journal of Inclusive Education*, *18*(4), 427–442.

→ Kim, J.R. (2011). Influence of teacher preparation programmes on preservice teachers' attitudes toward inclusion, *International Journal of Inclusive Education*, *15*(3), 355–377.

→ Lin, P.Y. and Lin, Y.C. (2015). Identifying Canadian teacher candidates' needs for training in the use of inclusive classroom assessment, I*nternational Journal of Inclusive Education*, *19*(8), 771–786.

→ Mady, C., Arnett, K. and Muilenburg, L.Y. (2017). French second language teacher candidates' positions towards Allophone students and implications for inclusion, *International Journal of Inclusive Education*, *21*(1), 103–116.

→ Mertens, D.M. (2010a). *Research and evaluation in education and psychology: integrating diversity with quantitative, qualitative, and mixed methods* (3rd ed.). Los Angeles–London–New Delhi–Singapore–Washington, DC: Sage Publications.

→ Mertens, D.M. (2010b). Transformative mixed methods research, *Qualitative inquiry*, *16*(6), 469–474.

→ Mezirow, J. (2009). An overview on transformative learning. In: K. Illeris (ed.), *Contemporary Theories of Learning. Learning theorists... in their own words* (pp. 90–105). New York: Routledge, Taylor & Francis Group.

→ Miller Dyce, C. and Owusu-Ansah, A. (2016). Yes, We Are Still Talking About Diversity: Diversity Education as a Catalyst for Transformative, Culturally Relevant, and Reflective Preservice Teacher Practices, *Journal of Transformative Education*, *14*(4), 327–354.
→ Morgan, B. (2009). Fostering transformative practitioners for critical EAP: Possibilities and challenges, *Journal of English for Academic Purposes*, *8*(2), 86–99.
→ Nash, K.T. (2013). Everyone sees color: Toward a transformative critical race framework of early literacy teacher education, *Journal of Transformative Education*, *11*(3), 151–169.
→ Olechowska, A. (2016). *Specjalne potrzeby edukacyjne*. Warsaw: PWN.
→ Pitura, J., Leśnik, A., Rak, K., Renat, D. and Równiatka, A. (2019). Czego nauczyli się młodzi badacze w projekcie wspierającym studentów cudzoziemców, *Języki Obce w Szkole*, *3*, 103–108.
→ Peebles, J.L. and Mendaglio, S. (2014). The impact of direct experience on preservice teachers' self-efficacy for teaching in inclusive classrooms, *International Journal of Inclusive Education*, *18*(12), 1321–1336.
→ Rakap, S., Parlak-Rakap, A. and Aydin, B. (2016). Investigation and comparison of Turkish and American preschool teacher candidates' attitudes towards inclusion of young children with disabilities, *International Journal of Inclusive Education*, *20*(11), 1223–1237.
→ Regulation of the Minister of Science and Higher Education of January 17, 2012 on the standards of education preparing to practice as a teacher (Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 17 stycznia 2012 r. w sprawie standardów kształcenia przygotowującego do wykonywania zawodu nauczyciela, Dz.U. 2012 poz. 131), http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20120000131
→ Specht, J., McGhie-Richmond, D., Loreman, T., Mirenda, P., Bennett, S., Gallagher, T., Young, G., Metsala, J., Aylward, L., Katz, J., Lyons, W., Thompson, S. and Cloutier, S. (2016). Teaching in inclusive classrooms: Efficacy and beliefs of Canadian preservice teachers, *International Journal of Inclusive Education*, *20*(1), 1–15.
→ Sweetman, D., Badiee, M. and Creswell, J.W. (2010). Use of the transformative framework in mixed methods studies, *Qualitative inquiry*, *16*(6), 441–454.
→ Tangen, D. and Beutel, D. (2017). Pre-service teachers' perceptions of self as inclusive educators, *International Journal of Inclusive Education*, *21*(1), 63–72.

→ Turula, A. (2018). *E-learning akademicki: Perspektywa humanistyczna*, Kraków: Wydawnictwo Naukowe Uniwersytetu Pedagogicznego.
→ Van Boxtel, J.M. (2018). Constructing culturally responsive professional development for inclusion in El Salvador using the lens of intercultural competence, *International Journal of Inclusive Education*, *22*(11), 1173–1183.
→ Walker, T. and Molnar, T. (2013). Can Experiences of Authentic Scientific Inquiry Result in Transformational Learning?, *Journal of Transformative Education*, *11*(4), 229–245.
→ Walton, E. and Rusznyak, L. (2014). Affordances and limitations of a special school practicum as a means to prepare pre-service teachers for inclusive education, *International Journal of Inclusive Education*, *18*(9), 957–-974.
→ Wilhelmson, L., Åberg, M.M., Backström, T. and Olsson, B.K. (2015). Enabling transformative learning in the workplace: An educative research intervention, *Journal of Transformative Education*, *13*(3), 219–238.
→ Wyatt, M. and Pasamar Márquez, C. (2016). Helping first-year undergraduates engage in language research, *Language Teaching Research*, *20*(2), 146–164.

Epistemological Reflection in Contemporary Teachers' Training

Teachers as Architects of Their Own Knowledge

DOI: 10.47050/66515314.202–219

Dorota Zdybel

The educational system of teacher training in Poland is focused on developing professional competencies, mainly didactic, directly involved in the process of teaching particular school subjects. The absent element is epistemological reflection, understood as an ability to critically reflect on the essence of knowledge and knowing process. Such reflection stands at the core of teachers' professional development, it being the critical condition of constructing personal epistemology.

The aims of this chapter are to examine the dimensions of epistemological reflection, to explain its influence on teachers' personal theories and hidden presumptions concerning knowledge and learning, as well as to explain the role of epistemology in teachers' training. Theoretical considerations are illustrated with examples of students' drawings and statements, collected during the action research study on in-service teachers' concepts of the mind/learning.

Keywords:
epistemological reflection
personal epistemology
teacher training
action research
phenomenographic interviews

Introduction

Kathleen Forsythe argues that contemporary teachers are neither the owners nor the transmitters of knowledge – "they are and they should be perceived as knowledge architects" (cited in: Dylak, 2013, p. 170). The knowledge architect is a "strategic designer who opens new dimensions of working and learning space by developing new infrastructure for human interactions" (ibidem) – he develops the educational space where deep, meaningful communication can take place. An architect who is able to build knowledge structures in himself and in his students not only must be aware of his own knowledge (its credibility and justification) but should also be able to confront his epistemological reflection with others, to express it clearly or even bring it into question, challenge it, deconstruct it and reinterpret it if necessary. The article presented here concerns epistemological reflection as a keystone in the pedagogical profession, it being the critical condition of constructing personal epistemology. The aim of this chapter is to explain the impact of epistemological reflection on teachers' personal theories and hidden presumptions concerning knowledge and learning.

The first, theoretical part of the article is to provide a short overview of different pedagogical and psychological concepts of personal epistemology and their methodological consequences. The role of epistemological reflection in teacher training is explained. The second, empirical part of the article will present the study designed as action research included in a post-diploma degree for teachers seeking the possibility to change the course of their pedagogical career in "Early Childhood Education and Care". Phenomenographic interviews based on projective drawings are presented and analyzed in terms of the conceptions of mind and knowledge underlying teachers' explanations. The presentation of the research results will be concluded with a short description of the methods used to elicit teachers' epistemological reflections in the course of their studies.

Personal epistemology in teachers' knowledge systems

King and Kitchener (2002) define epistemology as "a theory of knowledge, reflecting its epistemological origins in the Greek words 'episteme' (knowledge) and 'logos' (theory)". Therefore, personal epistemology should be seen as an individual theory of knowledge,

a set of layperson's beliefs concerning knowledge/knowing, often activated more or less consciously during a learning process. Regrettably, although the construct of personal epistemology has been a research area in psychology and pedagogy since the seventies, it is still perceived as a sort of umbrella term – broad and complicated, multidimensional but with unclear borders, often employed by researchers to tackle essentially different phenomena. The meta-analyses of over 670 publications conducted by Briell et al. (2011, pp. 8–11) allowed the extraction of over 39 different terms used by researchers to describe human beliefs, attitudes or assumptions related to the nature of knowledge and knowing, e.g. epistemic cognition (King & Kitchener, 2009), epistemological meta-knowing (Kuhn, 2000), epistemic metacognition (Hofer, 2004), epistemic thinking (Barzilai & Zohar, 2014), as well as epistemic orientation, climate, stance, understanding and many others.

Each of these terms implies a multidimensional, complex structure of personal epistemology. At the same time, however, high differentiation can be noticed in the methodologies employed, as well as in the empirical operationalisation of the construct's internal structure. As Hofer and Pintrich pointed out: "There are discrepancies in naming the construct as well as in defining the construct, to the extent that it is sometimes unclear to what degree researchers are discussing the same intellectual territory" (1997, p. 111). Table 1 offers an overview of the most important constructs introduced in the literature along with their definitions.

Table 1. Personal epistemology as a multifaceted concept – an overview of the most important constructs

CONCEPT	DEFINITION
Schommer-Aikins (2002) *Epistemological Beliefs*	A form of personal, commonsense and emotionally charged knowledge, reflecting assumptions, attitudes and values related to knowledge – – a multiple system of beliefs which function more or less independently.
Hammer & Elby (2002, 2010) *Epistemological Resources*	More fine-grained individual beliefs about knowledge and knowing which have a context-specific and situated character.
King & Kitchener (2002) *Epistemic Cognition*	The ability to undertake a conscious reflection on "the limits of knowing, the certainty of knowing, and the criteria for knowing" (p. 38) – a monitoring process that occurs in the solving of complex, ill-structured problems. While metacognition allows the individual to monitor and regulate the basic mental processing involved in learning, the epistemic reflection moves the cognition to a higher level, allowing one a) to consider the nature and complexity of the problem/task, and b) to evaluate the proposed solutions, their justification, thoroughness, argumentation used, etc.
Kuhn (2000) *Epistemological Meta-knowing/ Epistemological Understanding*	Epistemological meta-knowing is a more abstract component of metacognition, which refers to an individual's broader understanding of what knowledge and knowing are in general.
Hofer (2004) *Epistemic Metacognition*	Beliefs about the nature of knowledge (the certainty of knowledge, the simplicity of knowledge, and about the self as a knower) and the nature of knowing (evaluating the source of knowing, determining the justification of knowing, and regulating cognition during knowledge construction).
Feucht (2010) *Epistemic Climate*	The nature of the knowledge and knowing of a classroom emerging from the personal epistemologies of students and their teachers, as well as from the epistemological underpinnings of instruction and knowledge representations along with the reciprocal relations among these four components.
Barzilai & Zohar (2014) *Epistemic Thinking*	Encompasses both: *Epistemic cognition* – defined as thinking about the epistemic characteristics of specific information, knowledge claims, and their sources, as well as engaging in epistemic strategies and processes of reasoning about specific information, knowledge claims, and their sources; *Epistemic metacognition* – includes knowledge, skills and experiences regarding the nature of knowledge and of knowing strategies.
Feucht, Brownlee & Schraw (2017) *Epistemic Reflexivity*	An informed and intentional internal dialogue which includes a focus on personal epistemology and leads to transformative changes in educational practices, expectations and beliefs. Reflexivity involves critical thinking that evaluates multiple perspectives in a particular educational context (the 3R-EC model – Reflection, Reflexivity and Resolved Action for Epistemic Cognition).

Source: own design.

One of the main controversies concerns the very nature of personal epistemology: What is the form and internal structure of the construct? Is personal epistemology the coherent and internally structured system of beliefs activated in a particular problem-solving situation? Or it is the process of epistemic understanding/reflecting on the nature of knowledge, or the even more basic pre-conceptions, presumptions, not fully conscious forms of understanding underlying this process? The most widely known and elaborated approach in the literature is that offered by Barbara Hofer, who defines personal epistemology as "an aspect of metacognitive awareness often activated in the knowledge construction process" (2004, p. 43).

According to Hofer, the system of beliefs and assumptions constituting personal epistemology form an internally intertwined, relatively coherent theory, which includes four basic components: (1) beliefs concerning the nature of knowledge (certainty and simplicity of knowledge), (2) beliefs concerning the self as a knower (one's own epistemic needs and dispositions, the ability to undertake critical epistemic reflection, tolerance for uncertainty versus the need for epistemic closure, finding certain detailed answers), (3) beliefs concerning the nature of knowing (the source of knowledge and the justification of knowledge), and (4) regulating cognition during knowledge construction (evaluating the usefulness and credibility of knowledge acquired) (Hofer, 2004, p. 46). All these areas of beliefs are susceptible to development, although the rate and depth of developmental changes are highly differentiated at both the individual and socio-cultural level:

1. Beliefs about knowledge credibility evolve from (i) an absolutist level, where knowledge is perceived as coming from an external source, as having a certain, objective nature, and can be evaluated as right or wrong; through (ii) a relativistic approach, when knowledge is perceived as generated by human minds and therefore uncertain, based on personal opinions which might be freely chosen by and accountable only to their owners; to (iii) an evaluativist approach, where knowledge is susceptible to evaluation and judgements that can be evaluated and compared according to the criteria of an argument and evidence (Kuhn & Dean, 2004, p. 272);
2. Beliefs concerning the complexity of knowledge evolve from perceiving knowledge as a set of isolated, widely known facts/

information to understanding knowledge as a system of internally connected concepts, which can be context-specific, relativistic, and dependent on the situation (Hofer, 2004, p. 46);
3. Beliefs concerning the source of knowledge develop from perceiving knowledge as objective and coming from the external world (books, teachers, professionals) to perceiving yourself as an active subject constructing personal meanings and opinions;
4. Beliefs concerning the justification of knowledge develop from justifications based on objective, empirical facts/evidence provided by experts (knowledge is certain and objective) to the level where the knowledge might be justified by the strength and quality of arguments (knowledge is developed, interpreted and reinterpreted in a particular context) (King & Kitchener, 2004, pp. 7–8).

A quite different paradigm was offered by Marlene Schommer-Aikins (2002), who described personal epistemology as a system of beliefs that are explicitly multidimensional, function more or less independently of one another, and may or may not develop in synchrony. The term "belief" is conceived here as a form of personal, naive and emotionally charged knowledge, grounded in everyday experiences and reflecting assumptions, expectations, values and attitudes which may affect epistemological reasoning in a particular context. In other words, beliefs overlap with knowledge, in the sense that they are possessed by an individual while being affectively charged, not always conscious, having limited access to logic, and resistant to change (Barzilai & Zohar, 2014).

An even more detailed and narrow approach is that of the epistemological resources of an individual. In this paradigm, introduced by Hammer and Elby (2002), personal epistemology is perceived as fine-grained knowledge elements possessed by an individual, less stable or trait-like, the activation of which has a situated, context-dependent and domain-specific character (Elby & Hammer, 2010, p. 410). Some researchers claim that "epistemological resources may gradually evolve into beliefs as they become fully-fledged, articulated and more stable, but such theory-like stability is more of a characteristic of experts than students" (Zohar & Barzilai, 2014, p. 15). Although such studies do not provide a general model of personal epistemology development,

they have great explanatory power for explaining students' approaches to learning and understanding variability in their reactions.

As Briell et al. (2011, p. 10) notice, contrary to the above-mentioned concept-like/conception-oriented approaches are those that consider personal epistemology as a process. As a prototypical example, King and Kitchener (2009, pp. 37–38) suggested a three-level model of cognitive processing necessary to account for complex phenomena involved in metacognition:

1. At the first level – **cognition** – basic cognitive processes are activated, such as computing, memorising, perceiving, reading, calculating, understanding, reasoning, etc.
2. The second level – **metacognitive processing** – requires being able to monitor and evaluate one's progress when engaged in level one tasks, to observe the effectiveness of one's own thinking, to recognise the obstacles and to adjust the learning strategy.
3. At the third, more abstract level – labelled as **epistemic cognition** – individuals are able to consciously reflect on "the limits of knowing, the certainty of knowing, and the criteria for knowing" (King & Kitchener, 2009, p. 38). While metacognition allows the individual to monitor and regulate the basic mental processing involved in learning, the epistemic reflection moves the cognition to a higher level, allowing one a) to consider the nature and complexity of the problem/task, and b) to evaluate the proposed solutions, their justification, thoroughness, argumentation used, etc.

A process-oriented approach is also reflected in such terms as epistemological understanding (Hofer, 2004), reflective judgements that individuals must undertake when confronted with ill-structured problems for which there is no simple, ready-to-be-used algorithm (King & Kitchener, 2004), as well as epistemic reasoning, ways of knowing, epistemic thinking, epistemological reflection, etc. (for an overview and synthesis, see Briell et al., 2011; Urman & Roth, 2010; Bendixen & Feucht, 2010). A vast majority of researchers representing the process-oriented approach try to integrate the previous research results to offer an integrative model explaining the process of knowledge construction. As an example, Barzilai and Zohar (2014) introduced the concept of "epistemic thinking" as a broad process encompassing both:

1. Epistemic cognition – defined as thinking about the epistemic characteristics of specific information, knowledge claims, and their sources, as well as engaging in epistemic strategies and processes for reasoning about specific information, knowledge claims, and their sources;
2. Epistemic metacognition – including knowledge, skills and experiences regarding the nature of knowledge and of knowing strategies in general.

Feucht, Brownlee and Schraw (2017) propose a model of "epistemic reflexivity" as the key to explaining the potential impact of personal epistemology on educational practice. Reflexivity is an internal dialogue which includes a focus on personal epistemology and leads to transformative changes in educational practices, expectations and beliefs. Engaging in epistemic reflexivity can promote deep professional learning and bring sustainable changes in teachers' education.

The role of epistemological reflection in teacher education

Personal epistemology constitutes some sort of "handy knowledge" (Stemplewska-Żakowicz, 1996) which is naturally and automatically activated during learning processes, both inside and outside school, and although it is not always realised by the teacher themselves, it inevitably influences the course and the results of constructing one's own knowledge. However, its "naive" and commonsensical character hides some threats, the most important of which is the fact that personal pedagogy, brought by a student to his pedagogical studies as foreknowledge, becomes a specific interpretative filter for newly acquired scientific knowledge. "The more personal knowledge departs from scientific knowledge, the more scientific knowledge is perceived as unrealistic and not very useful for being applied in practice. Leaving this fact to the natural course of events results in the division of the knowledge into two categories, isolated from each other, which are formed in the student's cognitive structures. Those two categories of knowledge are scientific knowledge, which needs to be acquired to be demonstrated, in the case of which it is not proper not to have it when being a teacher, and practical, personal knowledge, which proves useful in specific situations in a school classroom" (Dudzikowa, 2015).

Such a dualism makes it difficult, if not impossible, for scientific thought to permeate the teacher's practice, which often leads to the trivialisation of educative actions and causes them to become intuitive, with the simultaneous helplessness or rather inertness of theoretical knowledge, which is referred to by Gołębniak as the "inability to go beyond one's own definitions" (cited in: Klus-Stańska, 2010, p. 72). Klus-Stańska adds: "The inertness of those definitions, their focus on the local everyday life and their dependence on specific teachers' working conditions may lead to an anti-developmental stabilisation of the system of not only the teacher's knowledge but also of the reality created by the teacher with the use of such knowledge in the classroom. This type of stabilisation stands not so much for traditionalism (although it may in fact consist in leaning towards it) but for creative inefficiency when a teacher is in two minds about a hazy need for change and a semantic closure of his own ideas" (ibidem).

In this sense, the key to releasing the teacher's innovative potential is "to realise his own hidden presumptions, tacit premises and reasons creating the deep structure of human experience" (Kwaśnica, 2003, p. 318), or, as stated by Bruner, "to deconstruct and reinterpret" those areas of personal educational theory which, even though hidden, "silently" shape our proceedings in a classroom (2006, p. 77).

Action research – pre-service teachers' conceptions of the mind and knowing

Design and methodology

The study presented here was designed as action research undertaken during the course in Early Childhood Education and Care at post-diploma degree level for in-service teachers who were seeking to change the pedagogical course of their professional career. The following research questions were formulated:

1. How do in-service teachers understand their own mind and knowing?
2. What conception of the mind do they use to explain their own learning, the process of acquiring new knowledge?
3. To what extent are they aware of their own commonsense presumptions?

Students were asked to draw their mind and explain how it works when they learn something new or solve a difficult problem. The metaphor of a machine was used as an inspiration for a projective drawing, followed by a phenomenographic interview, which was recorded and analyzed afterwards. While searching for differentiation in teachers' conceptions of the mind, several important criteria were elicited, such as:

1. Mental operations engaged in learning (functions of the mind named by a respondent) – cognitive, emotional, moral, creative, etc.
2. Internal relations between mental processes (the dynamic of cognition) – static/dynamic conception of the mind; lack of internal relations/linear relations/deep and complicated relations;
3. The results of cognition (knowledge's internal structure, the way of organising the information in the human mind) – isolated, separated data versus an integrated, internally intertwined system of knowledge.

As a result, a map of different conceptions of the mind was created, including such representations as:

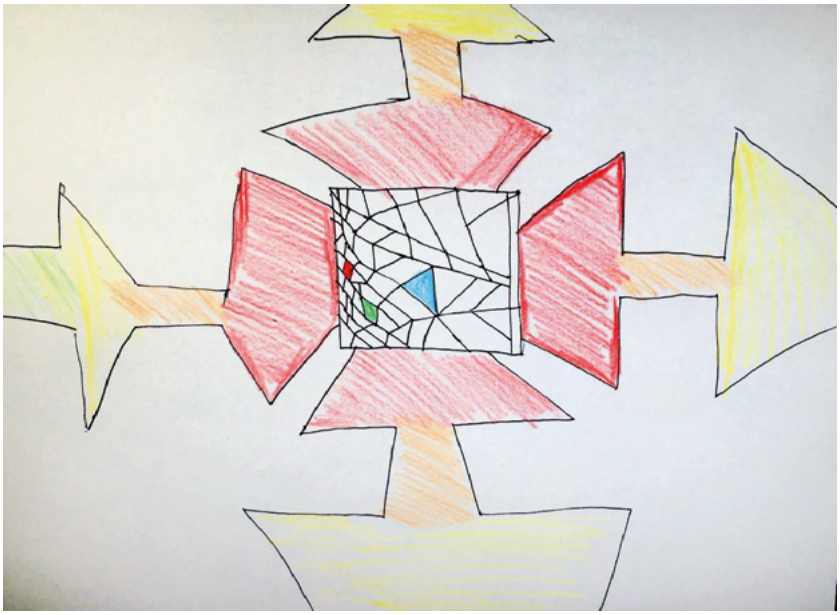
1. Mind as a mystery
2. Mind as storage for data/information
3. Mind as a centre of processing information, including (i) simple, linear, and cognitive processing, and (ii) a complex, multidimensional processing model

These models will be described and illustrated with teachers' drawings in the next section.

Results

One of the most striking examples – which should be described as a "lack of conception" – is the mind represented as a mystery (Figure 1). The author of the drawing explains it as follows: "My mind as like a machine with a very complicated structure. One important stimulus is enough to light the red light in my mind. Each stimulus causes intensive work. [...]. When I learn something new my mind starts working very slowly at first, then faster and faster; the closer to the central part, the more intensive the work becomes, my mind becomes hot, burning, it cannot be touched, and finally it explodes [...]. Time causes the stimulus to dim, cool down, and it becomes less important" (MA in special education)".

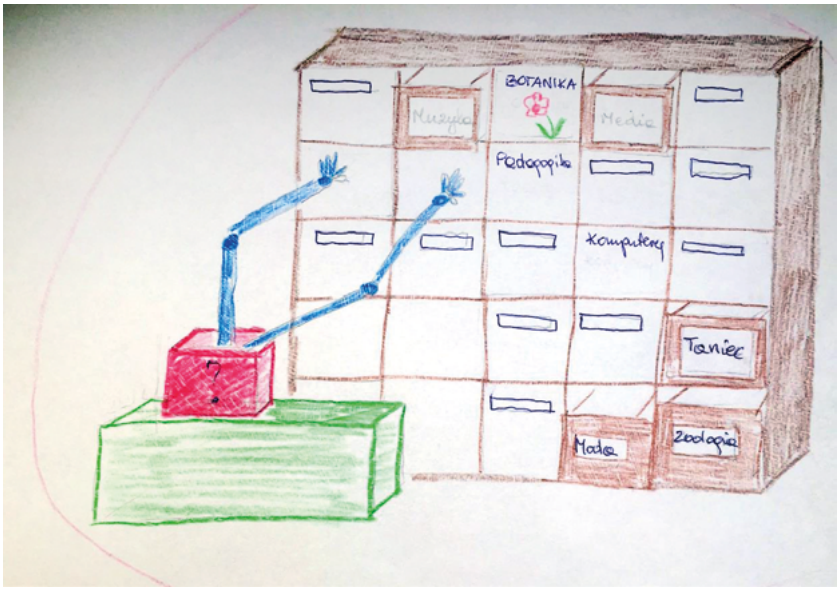
Figure 1. Mind as a mystery (teacher with 17 years of experience, MA in special education)



The most important characteristics of the "mind as a mystery" model are (1) the strong feeling of internal energy, often expressed in comparison to a fire – the mind is *burning, buzzing, exploding*; and (2) the feeling of ineffectiveness (*mind becomes stuck, jammed, suspended*) and the lack of control. As a result, the respondents are not only unable to name any mental process, but they seem to have no conception of knowledge and no ability to undertake any conscious effort to make their own learning successful.

Another type of mind is the "mind as storage for data/information" (Figure 2): "My mind works in a very fast and efficient way, unfailingly. When I learn something new, my mind is accumulating new information in proper compartments. Each new topic, event, fact, data, new piece of information has to be stored in a proper place. When a problem appears which needs to be solved, or if there is a need for using the information (my knowledge or skills), this piece is easily and quickly found [...]. If I cannot find a direct solution to the problem, I try the method of 'trial and error' – sometimes my mind finds a few pieces of knowledge and puts them together to form a solution to the very difficult problem".

Figure 2. Mind as storage for data/information (teacher with 2 years of experience, MA in special education)

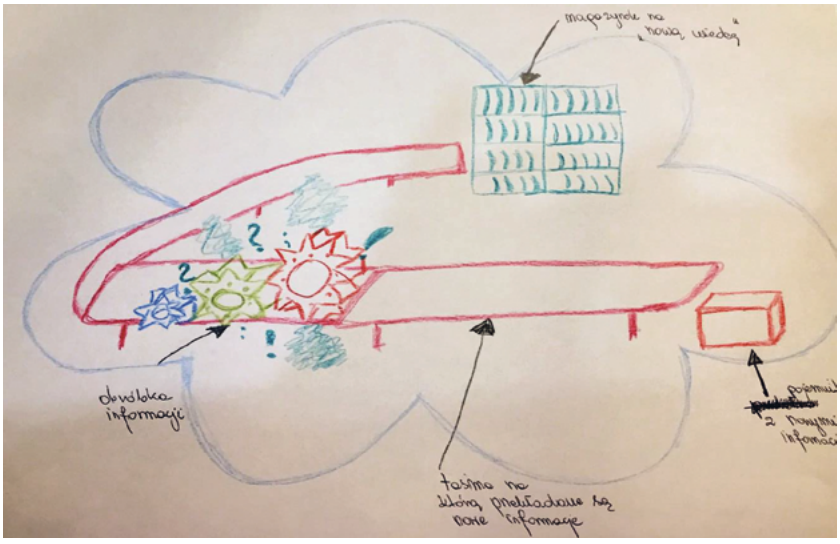


This is a concept of a passive, inert mind that is very static. In this vision, knowledge has an obviously external character; acquiring knowledge means collecting, remembering and restoring information, and it is conceived as an external compulsion. Memorising the new information, locating it in memory structures (segregating, arranging or separating it in a proper drawer), and retrieving the information when necessary are the key functions of this mind. The most important aspect of this activity is not to tangle the data – "paths of input" are carefully closed. Therefore the knowledge collected is cut into separate pieces, with no possibility of forming an integrated, holistic mental structure. The mind represented as a "filing cabinet" or "file binder" not only has restricted possibilities and limited control over the learning process, but also seems to be strictly cognitive – no affective, moral, or creative processes were mentioned.

The vast majority of teachers represented their mind as a machine "processing information". Figure 3 presents an example of the mind as a simple processing model: "My mind as a hard-working machine. It consists of a container where new data are collected, a conveyor

belt where the new data are moved to and processed, and then after processing and arranging in a proper order new information is moved to a warehouse where new knowledge is being stored. When I learn something new my mind works, all the elements are on the move, information is crafted, carved; the pieces which were evaluated as not important are lost, but the rest of data takes a new form. During that process, many questions or discrepancies appear which might suspend the work. When the information is ordered, crafted and arranged, it turns into new knowledge which is stored in the memory" (preschool teacher with 5 months of professional experience)".

Figure 3. Example of a "processing mind" – a simple, cognitive processing model (preschool teacher with 5 months of experience)



As we can see, the "processing mind" is richer in its areas of activity; at the same time, however, it reveals a certain stereotype based on a psychological model of solving problems. The problem seems to be an activator, inducing cognition and putting the gears into motion, but it is also a task coming from outside the system. The very process of solving the problem, of finding the solution seems quite mysterious, although it is based on "processing data", segregating information, explaining, understanding and systemising. An important role is played

here by subconscious areas of the mind (byproducts of thinking, information evaluated as not important), which – unavailable to conscious control – can disturb cognition. Although the very process of learning seems to be rather linear, the nature of knowledge underlying this model is more complex, non-linear, and constructed by the subject's mind.

A high level of variation, however, was discovered among the "processing minds" concepts: other than the linear processing, purely cognitive, problem-solving-based model, there were also examples of "complex processing" involving non-cognitive dimensions of the human mind. Here is an example of such an explanation: "My mind is a machine with a complex, but slightly chaotic structure. Sometimes very lazy and other times very creative in nature, searching but often making mistakes and losing track. There is a lot of place for feelings, emotions, colours, music, film, knowledge, memory and concentration. When I learn something new, my mind activates my senses and my whole personality [...]. When I deal with a very difficult problem, my mind needs other minds, close and friendly, which help to find the way to the world" (teacher assistant with an MA in special education, 1.5 years of professional experience).

Figure 4. An example of complex, non-linear, multidimensional processing (preschool teacher with 3 years of experience)

The model of a complex processing mind presented here not only involves non-cognitive areas of learning, e.g. emotions (the mind "*activates the motivation*", "is happy to find a right solution", etc.), sensorial experiences (the "*mind brightens up with colours*"), and moral choices (the "*mind makes decisions about what is good and what is wrong*"), but is also able to create new ideas. Interestingly, some of the respondents representing this type of mind consider social contact with other minds as highly important in constructing knowledge (unfortunately not many, however – only three examples of such statements were found in the research group). Another interesting observation is the fact that the "multidimensional processing model" was not always related to the feeling of control over one's own mind, e.g. "When I solve a very difficult problem my mind can sometimes refuse to listen to me, it can block my actions, hide the important information. It works in a straggling way as if it does not understand that it is important for me. The more nervous I become, the more blocked the mechanisms of my thinking are, and when I strive to find the resolution, my mind writes off my great cares, it seals off the possible solutions" (preschool teacher with 3 years of experience). Feelings of suspension, withdrawal, or other forms of the mind's internal resistance were also reported by many respondents.

Conclusions – in search of possibilities to change teachers' personal epistemology

The action research presented was not designed to draw general conclusions. The aim was instead to outline certain underinvestigated areas in teacher education and to open a discussion on the following questions: How can we prepare in-service teachers to undertake critical, epistemological reflections? How can we support their ability to reflect on their own concepts and hidden presumptions concerning knowledge and knowing? How can we turn these reflections into a pedagogical habit? It is difficult to find answers to such questions in the Polish pedagogical literature. However, there are discussions and innovative initiatives designed to build teachers' sensitivity to the epistemological dimension of everyday educational work that is ongoing in schools.

One of the possible solutions offered to teachers in this action research was writing as a form of dialogue with oneself (Dylak, 2013, p. 169) – such self-referred dialogue, when written down, takes

an external form, allowing the teacher to crystallize their thoughts, make them more concrete and tangible, and grasp their potential inadequacies, gaps or internal inconsistencies. Bruner describes this process as "externalisation", which "provides a record of our mental efforts, something that stays outside our mind rather than in our memory [...]. To some extent, this releases us from the always difficult task of thinking about our own thinking, leading to an identical effect. This embodies our thoughts and intentions in a form that is more accessible to reflection" (2006, p. 43). Thanks to externalisation, "the thinking process and its products are cross-cut", strengthening and complementing each other. It allows the individual to stop in the thinking process and realize what has been achieved until now. Externalisation can be used not only to reflect on one's own educational practice but also to comment on and interpret pedagogical literature, which resembles written discussions/polemics with the author (Dylak, 2013, p. 169).

Another method used to inspire epistemological reflection in authors' action research was described by Brownlee, Ferguson and Ryan (2017), who discuss the contradicting statements related to educational practice grouped in the lesson scenarios provided to students. Dialogue as a form of epistemic reflection is discussed by many authors – it provides the possibility to confront our personal theory with others' perspectives, to debate opposing views, and, as a result, to make our knowledge more precise, thorough, and recursively interpreted. The point is to ask questions that "liberate us from the feeling of self-evident truth" and allow us "to experience the genuine incertitude and suspense that make you anxious and push you to find your own answers" (Kwaśnica, 2003, p. 292). Questions that "bracket" our prior knowledge, inspiring critical reflections on its rationality and opening the space to thinking. In the postmodern, liquid reality, a teacher is no longer, as he can no longer be, "a man of answers" – he must convert himself into "a man of questions", a researcher becoming aware of the defeasibility and uncertainty of knowledge, and overthrowing the existing school reality in search of another – a qualitatively new reality, tailored to students' needs and capabilities (Adamek, 2013, p. 30).

References

- Adamek, I. (2013). Kompetencje kluczowe a swoistość kompetencji kreatywnych nauczyciela. In: I. Adamek, J. Bałachowicz (eds.), *Kompetencje kreatywne nauczyciela wczesnej edukacji dziecka* (pp. 15–48). Kraków: Oficyna Wydawnicza Impuls.
- Barzilai, S. and Zohar, A. (2014). Reconsidering Personal Epistemology as Metacognition: A Multifaceted Approach to the Analysis of Epistemic Thinking, *Education Psychologist*, *49*(1), 13–35.
- Bendixen, L.D. and Feucht, F.C. (eds.) (2010). *Personal Epistemology in the Classroom: Theory, Research, and Implication for Practice*. New York: Cambridge University Press.
- Briell, J., Elen, J., Verschaffen, L. and Clarebout, G. (2011). Personal Epistemology: Nomenclature, Conceptualizations, and Measurements. In: J. Elen, E. Stahl, R. Bromme, G. Clarebout (eds.), *Links Between Beliefs and Cognitive Flexibility: Lessons Learned* (pp. 7–36). Dordrecht: Springer Science+Business Media.
- Brownlee, L.J., Ferguson, L.E. and Ryan, M. (2017). Changing Teachers' Epistemic Cognition: A New Conceptual Framework for Epistemic Reflexivity, *Educational Psychologist*, *52*(4), 242–252.
- Bruner, J.S. (2006). *Kultura edukacji*. Kraków: Universitas.
- Dudzikowa, M. (2015). *Udoskonalenie edukacji wymaga nauczycieli, którzy rozumieją… i potrafią*, https://sites.google.com/site/ksztalcenienauczycieli/home#_ftn10
- Dylak, S. (2013). *Architektura wiedzy w szkole*. Warsaw: Difin.
- Elby, A. and Hammer, D. (2010). Epistemological Resources and Framing: A Cognitive Framework for Helping Teachers Interpret and Respond to Their Students' Epistemologies. In: L.D. Bendixen, F.C. Feucht (eds.), *Personal Epistemology in the Classroom. Theory, Research, and Implications for Practice* (pp. 409–434). Cambridge: Cambridge University Press.
- Feucht, F.C. (2010). Epistemic Climate in Elementary Classrooms. In: L.D. Bendixen, F.C. Feucht (eds.), *Personal Epistemology in the Classroom. Theory, Research, and Implications for Practice* (pp. 55–93). Cambridge: Cambridge University Press.
- Feucht, F.C., Browlee, J.L. and Schraw, G. (2017). Moving Beyond Reflection: Reflexivity and Epistemic Cognition in Teaching and Teacher Education, *Educational Psychologist*, *52*(4), 234–241.
- Hammer , D. and Elby A. (2002). On the Form of a Personal Epistemology. In: B.K. Hofer, P.R. Pintrich (eds.), *Personal Epistemology: The Psychology of Beliefs about Knowledge and Knowing* (pp. 169–190). Mahwah–London: LEA Publishers.

→ Hofer, B. (2004). Epistemological Understanding as a Metacognitive Process: Thinking Aloud During Online Searching, *Educational Research*, *39*(1), 43–55.
→ Hofer, B.K. and Pintrich, P.R. (1997). The Development of Epistemological Theories. Beliefs about Knowledge and Knowing and Their Relation to Learning, *Review of Educational Research*, *67*(1), 88–140.
→ King, P.M. and Kitchener, K.S. (2002). The Reflective Judgment Model: Twenty Years of Research on Epistemic Cognition. In: B.K. Hofer, P.R. Pintrich (eds.), *Personal Epistemology. The Psychology of Beliefs about Knowledge and Knowing* (pp. 37–62). New York: Routledge.
→ King, P.M. and Kitchener, K.S. (2004). Reflective Judgment: Theory and Research on the Development of Epistemic Assumptions Through Adulthood, *Educational Psychologist*, *39*(1), 5–18.
→ Klus-Stańska, D. (2010). *Dydaktyka wobec chaosu pojęć i zdarzeń*. Warsaw: Wydawnictwo Akademickie „Żak".
→ Kuhn, D. (2000). Theory of Mind, Metacognition, and Reasoning: A Life-Span Perspective. In: P. Mitchell, K.J. Riggs (eds.), *Children's Reasoning and The Mind* (pp. 301–326). New York: Psychology Press.
→ Kuhn, D. and Dean, D. (2004). Metacognition: A Bridge Between Cognitive Psychology and Educational Practice, *Theory into Practice*, *43*(4), 268–273.
→ Kwaśnica, R. (2003). *Wprowadzenie do myślenia o nauczycielu.* In: Z. Kwieciński, B. Śliwerski, *Pedagogika. Podręcznik akademicki* (Vol. 2, pp. 291–319). Warsaw: PWN.
→ Schommer-Aikins, M. (2002). An Evolving Theoretical Framework for Epistemological Belief System. In: B.K. Hofer, P.R. Pintrich (eds.), *Personal Epistemology: The Psychology of Beliefs about Knowledge and Knowing* (pp. 103–118). Mahwah–London: LEA Publishers.
→ Stemplewska-Żakowicz, K. (1996). *Osobiste doświadczenie a przekaz społeczny. O dwóch czynnikach rozwoju poznawczego*. Wrocław: Leopoldinum.
→ Urman, L. and Roth G.L. (2010). Comparison and Consolidation of Models of Personal Epistemologies, *Journal of STEM Teacher Education*, *47*(3), 7–48.

Designing Provocative Education Environments for Teacher Training Emancipatory Practices

DOI: 10.47050/66515314.220–241

Gisselle Tur Porres

This chapter introduces a teaching collaboration practice with students of the National University of Education in Ecuador who will become early childhood teachers. It is the aim of this experience to design provocative educational environments within university classrooms to inform emancipatory practices in teacher training. In doing so, students are encouraged to think on their own learning practices as an emancipatory source for developing a culture of collaboration, participation and critical thinking. In this light, classes described across the chapter show the didactic strategy of educational provocation as a teaching method that allows for mentorship, formative assessment and the active participation of apprentices. Against this background, the methodological approach is based on the inspiring experience of Reggio Emilia to elaborate on provocations' didactics and the concept of the environment as a third teacher. Then, it is debated whether there is an emancipatory potential in creating provocative educational environments that mediate the pedagogic relations among teachers, students, content and the world of children.

Keywords:
early childhood
emancipation
environment
provocations
teacher training

Introduction

It is well known in early childhood education how school environments promote children learning (Castro Pérez & Morales Ramirez, 2015; Vecchi, 2013; Fraser, 2012; Rinaldi, 2009; Hoyuelos, 2005; Ceppi & Zini, 1998; Gandini, 1998); however, scarce research has been conducted on how environments encourage university students' learning, especially in teacher education. Against this backdrop, this pedagogic experience promotes thinking about the relevance of understanding the environment as **a third teacher** in early childhood teacher training. With the objective of thinking on appropriate educational environments with/for children, future teachers are invited to experience a provocative educational environment designed for their own learning process through a lively approach that helps to reflect on the importance of creating adequate learning environments in early childhood education. In this sense, this work is inspired by the pedagogic approach of Reggio Emilia that introduces the environment as a relevant actor in promoting children's learning.

Following from the above, this paper elaborates on a teaching collaboration practice with first-semester students of the Early Childhood Education bachelor's degree at the National University of Education (UNAE), Ecuador. This teaching practice suggests designing provocative educational environments within university classrooms to inform emancipatory practices in teacher training. Also, in this practice, it is asked whether there is an emancipatory potential in creating provocative educational environments that mediate the pedagogic relations among teachers, students, content and the world.

The experience is informed by the university's Pedagogic Model (UNAE, 2017) that encourages critical thinking through emancipatory pedagogic practices in favour of equity, diversity and inclusion. Furthermore, it focuses on the development of research skills in/for teaching and the link with the community during that process. More particularly, the experience was held in the subject named "Diagnostic Approach of Educational Policies in Specific Educational Institutions in coordination with the subject Subjects and Educational Contexts". The first subject is part of the pre-professional practices done at schools, and allows for theoretical and experiential learning. It is worth mentioning that students attend early childhood schools to learn from practices from the very beginning of their course. In the first cycle

of their course, they only attend school six times, once a week; then, they are able to reflect at the university about their experiences and are asked to do an integrated project based on a problem concerning educational policies in early childhood. The problems vary across each semester of their teacher training, and the frequency of their attendance at schools also varies across their teacher training; with each cycle, pre-professional practices are increased in frequency, as is their permanence at school. A pre-professional practice in the last semester of the course reaches a nine-week-period of daily attendance at school. Accordingly, the higher the training stage of the students, the more responsibility they have during their pre-professional practices. Across their teacher training programme (from first to ninth semester), students have three common axes that orient their practices, that is, to observe, to accompany, and to experience.

In addition, the subjects taught during the teacher training programme engage with practical situations, problems, cases and projects worked on in class in relation to school practices. Against this background, an arranged provocative environment in early childhood teacher training is presented with the aim of designing emancipatory educational environments for/with children, inspired by the pre--professional practices of the students.

Theoretical framework

The article bases its theoretical discussion on inspiring educational and emancipatory practices in early childhood education. In particular, the Reggio Emilia pedagogic approach is developed, specifically, in its way of understanding and conceptualising the environment to promote learning. In this sense, the main issues concerning the environment as the third teacher in the Reggio approach are described to enhance debates about environments that promote emancipatory learning processes with students who will become early childhood teachers.

The Reggio Emilia approach

The northern Italian community of Reggio Emilia is known worldwide for its approach to childhood, based on a **pedagogy of listening**, in which the design of environments is thought to develop **the hundred languages of children**, as described by Loris Malaguzzi, to give full expression to the many potentialities of children.

The origin of the Reggio Emilia approach is found during the post--World War II period, where citizens and families organised themselves to promote a nursery school that was engaged in and responsible for the future of children with a political and social commitment (Stegelin & Cecconi, 2013). By that time, Malaguzzi was a teacher, who joined the community's efforts and developed what is now known as the Reggio Emilia approach. In the late 1960s, the schools were included in the municipal system; this allowed an increase of efforts in the development of the educational project centred on the child. This initiative continued growing in the community itself but also internationally.

In this educational setting, children are able to experience and make their own selections of projects, becoming active participants in the construction of the learning process. The child is the subject of rights, the participant of her/his own knowledge construction. The artistic interventions and the collaborative work between teachers and artists are rather central to introduce the aesthetic dimension in the learning process. Children are strengthened in their potential for learning with multiple emotional, relational, sensory and intellectual resources that allow them to explore different languages, ways of thinking, ways of doing, ways of understanding, ways of living, ways of participating, and ways of experiencing with others. In this light, children, teachers and families are all part of the educational project.

Provocations in the Reggio Emilia approach are also central to stimulate a learning process **with no wrongs**; they are understood as activities that invite creativity, imagination, and exploration (Vecchi, 2013). Though materials for experimenting are provided, the outcomes, relations, and projects that derive from that setting are unexpected and created by children, either individually or in groups. Thus, provocations allow for experiencing, provoking interest and curiosity, and stimulating ideas and connections with oneself and with others.

In the Reggio Emilia approach, research represents another essential dimension of the educational project that becomes visible through careful pedagogic documentation. The latter is an integral part of the educational and didactic strategy to make the child's voice visible. Also, the concept of **progettazione** might be related to a pedagogic principle that encourages and provokes a teacher-child relationship, which facilitates autonomous learning paths for children. At the same

time, this concept is associated with an emergent curriculum that inspires strategies of thought and action, respectful and supportive of the learning processes of both children and adults, which accept doubts, uncertainty and errors as resources.

The environment as the third teacher

Malaguzzi elaborated on the environment as a third teacher, a space that responds to the needs of children and teachers, allows them to communicate with others, reveals children's works, and shows their interests and questions in a flexible way (Malaguzzi, 2001). In this sense, Hoyuelos (2005) also indicates that schools should be organised and designed by children, teachers and families, in which they should feel welcome and able to participate. Hoyuelos also highlights the dialogue between pedagogy and architecture, taking into account the aesthetics of pedagogy and vice versa.

Moreover, Rinaldi (2009) argues that experiences lived in the classroom leave memories in the environment, personal and collective stories that make spaces more lively for children, teachers and families. The environment is modified and transformed in relation to the projects and learning experiences of children and adults through a constant dialogue.

The Reggio Emilia schools give importance to participation at different levels, and the environment helps to build this culture of participation, of sharing, of connecting with others. Thus, spaces are connected with one another, the rooms open onto a central **piazza**, and children move freely from one space to the other. The "inside–outside school" relation is also an important one in which to think about the environment as a source of participation; a space that allows for exploration, provokes curiosity and enhances autonomous learning. Also, it is an **atelier**, a space that promotes art, creativity and interactions among the **atelieristas**, the children and the teachers; it provides a place for experimenting with various materials and for doing research (Ceppi & Zini, 1998).

The above-mentioned concepts in the Reggio Emilia approach invite us to reflect on the need to create learning paths for teacher education students that accompany their own autonomous and even emancipatory learning process that might then impact on their relation with children and families.

Methodological approach

The context

The educational practice elaborated in this paper took place in the Early Childhood Education bachelor's degree at the UNAE. As already mentioned, this experience was conducted with first-semester students. The graduate profile of the students, who aim to become early childhood teachers, is oriented towards the development of professional, research, teaching and pedagogic management competences that support the democratisation of the daily life of children while promoting educational environments for listening to children. In this way, the goal is to train teachers with the capacity to critically analyse the particular contexts of childhood in connection with their conceptual studies and bases of pedagogy and educational research[1].

The Early Childhood Education bachelor's degree plays a central role in the teaching-learning processes in early childhood; it contributes to socio-educational proposals and to strengthening the participation of the educational actors, that is, the teachers, the children, the family, the educational centre, and the community.

In this project, therefore, it is suggested to work with environments that are prepared to provoke significant learning as an emancipatory experience. Hence, in the classes described in the next section, an experience with an educational provocation environment will be presented that provokes thoughts about the design of a child-friendly space, linked to the proposal of thinking about an emancipated childhood.

In this paper, the experience involved students in the "Diagnostic Approach of Educational Policies in Specific Educational Institutions" subject. The group was quite small, as only 13 students were registered (12 women and 1 man); usually, groups' average number of students varied from 15 to 40 people. In this class, the environment was organised according to the Reggio Emilia approach with regard to the didactic strategy of educational provocations. Correspondingly, the process was documented with photographs, narratives and observations that allowed the educational experience to be analysed.

1 For more information, see the official website of the UNAE at www.unae.edu.ec/educacioninicial.

The thematic unit described in this paper was associated with the last unit of the semester, which was *The educational challenges of the 21st century*.

The expected learning was to *Analyse the current challenges of Early Childhood Education in the Ecuadorian educational context, specifically, in the context of pre-professional practices.*

The conceptual contents suggested for this thematic unit were to *Analyse current challenges of education in the digital age, professional problems, and the teachers, children, family and community relations in early childhood education.*

The procedural contents were to *review and analyse the Early Childhood Education curriculum* (Ministerio de Educación, 2014a) in relation to the students' experiences during their pre-professional practices. From this analysis, a topic that represented a challenge for the schools that the students attended for their pre-professional practices was selected and, according to the students' observations, the challenge resulted in building school environments that were designed after attentively observing and actively listening to the children's needs.

The attitudinal contents in play were to *value the importance of the context in the educational field in Early Childhood Education.*

The teaching strategies proposed to fulfil the goals of the unit were to work with **problem-based learning** *projects* through **educational provocation** in relation to the current challenges of early childhood education in the Ecuadorian context.

The resources and teaching aids that supported the proposal were used with the **flipped classroom** method. The latter is an important teaching method for the problem solving approach in which various resources and teaching aids are used, such as videos, books, photos and artistic interventions. To encourage critical thinking at each stage of the work, a formative three-step evaluation approach was suggested – (1) self-evaluation, (2) co-evaluation (student-student) and (3) hetero-evaluation (student-teacher) – that engaged a critical analysis, reflection, design and interpretation of a child's space based on the artistic works, texts and cases provided.

To support the analysis, reflection, design and interpretation of a child-friendly space, the texts by Cabanellas and Eslava (2005)

and Ceppi and Zini (1998) were provided. In addition, the students were stimulated to do some searches to review additional literature.

The evaluation was based on the reading of texts, artistic creations and the assembly of the space in the classroom. Also, the analysis and interpretation of the students' personal work were considered, and they were asked to choose the work of a partner to interpret. The interpretation of the work of their partner was uploaded to the virtual classroom to stimulate the discussion.

Moreover, in this work, the pedagogic relation was understood as the sayings and doings that compose a particular kind of practice that includes both the teachers and the students (Schatzki, 2001). Following Schatzki, "practices are inseparable from arrangements while arrangements channel, prefigure, facilitate, and are essential to practices" (2012, p. 16). Accordingly, the classroom arrangement and, in this particular case, the educational provocations "make it possible to constitute practices in a space-time" (Schatzki, 2012, p. 17). From this point of departure, the arrangement of the environment, in terms of teaching and research practices at the university, encouraged interaction and collaboration among teachers and students.

Provocations

The preparation of the environment and classroom arrangement were very carefully designed, and a wide range of materials was provided to the students. It was important, following the Reggio Emilia approach, that the organisation of the environment responded to an educational purpose and to the needs of the students, too.

In the Reggio Emilia approach, many of the provocations occur in the *atelier,* though they are not limited to that workshop space. The work that happens in the *atelier* combined with didactic strategies helps to motivate, listen and interact with children. The aesthetic sense of the workshops stimulates creativity, imagination and the expression of different ways of doing and saying things through verbal and nonverbal languages (Catini, 1999). Accordingly, in this pedagogic practice, the environment was carefully organised, with the aim that students (who were studying to become early childhood educators) started thinking, from the very beginning, about appropriate spaces that respected the time and autonomy of children in order to build a school environment that took actively listening to children as a point

of departure. That listening was put into practice in the relation with children during the students' pre-professional practices in early childhood schools. This interaction with children and the observations made during their practices allowed the students to engage with critical reflections about adequate environments that might emerge from actively listening to children's needs through their **hundred languages**.

Following from the above, the classroom at the university was prepared to welcome the students with various materials and devices to use for the project in order to create a school environment that respected the spaces, times and territories of childhood.

Pedagogic documentation

During the project, the educational experience was documented by photographs with the permission of the students. For the analysis of the experience, the narratives of the students in the form of texts produced, delivered and uploaded to the virtual classroom were used as a source of analysis. In addition, the participant observations made by the teacher and the notes written about the happenings, sayings and doings of the students in interaction with the materials, the suggested literature, and their searches and experiences with the electronic devices offered in the classroom were valuable sources of information to analyse the work, as suggested in the educational provocation didactic strategy.

Provoking educational environments

In this chapter, an arranged provocative environment in early childhood teacher training is presented with the aim of designing emancipatory educational environments for children, inspired by the Reggio Emilia experience.

Following on from the above, the experience of university students who will become early childhood teachers of thinking on their own teaching practices as an emancipatory source for developing a culture of collaboration, participation, and critical thinking from the early stages of their course will be presented. In this light, classes described across the paper show the didactic strategy of educational provocation as a teaching method that allows for mentorship, formative assessment and the active participation of apprentices with a critical thinking perspective. In addition, it is discussed whether there is an emancipatory

potential in creating provocative educational environments that mediate the pedagogic relations among teachers, students, content and the world.

The aim of the classes was to analyse the current challenges of early childhood education in the Ecuadorian context. For this reason, the following project was suggested: to design a school environment that respected the spaces, times and territories of childhood. In doing so, a review and analysis of educational policies and the early childhood education curriculum (Ministerio de Educación, 2014a) was the starting point to discuss the challenge of creating child-centred environments that promote participation, learning, family and community relations. Likewise, the curriculum guide developed by the Ministry of Education also was analysed (Ministerio de Educación, 2014b).

With this challenge in mind, the project suggested was based on a problem, that is, the current challenges for early childhood education to promote learning from a child's participatory approach that respects the spaces, times and territories of childhood. In this sense, the concept of learning environments in relation to the design of child-friendly spaces was addressed.

The classes described below include a work process that was carried out in four meetings of five hours each, including both face-to-face and autonomous work. The presentation of the classes shows the didactic strategy of educational provocation as a teaching method that allows for mentorship, formative assessment and the active participation of apprentices with a critical thinking perspective.

Class 1: In the first meeting, students were presented with the proposal of working on the project of designing a child-friendly space that allows for children's learning and participation. Also, the bibliography was delivered in the virtual classroom to work with a flipped classroom teaching approach. Three texts related to working in spaces set up for children were selected. The texts suggested an integrated vision of architecture and pedagogy that respected the spaces, times and territories of childhood.

Class 2: Students were encouraged to read the texts autonomously, which were then discussed in class, in workgroups, with the teacher's facilitation, who asked and responded to some questions that emerged in relation to the texts. To motivate the discussion, some questions were asked to the students, based on their reading of the texts: What draws your attention the most concerning the texts?

What words, concepts, or themes are new for you? What did you know about the texts? How do the texts relate to your pre-professional practice? These questions inspired group discussions, debates, and were a starting point for a new task.

Class 3: Preparation of the workspace. The classroom was previously arranged to facilitate and stimulate artistic interventions that gave continuity to the reflection process initiated in the previous meetings. The classroom was set up for the creation of a child-friendly space, made by the students, who were inspired by the texts they had worked on previously and by their opinions on how they imagined a child--friendly space that respected the times and territories of childhood. Likewise, the observations made during their pre-professional practices were taken into account for their projects.

Students were invited, first, to get to know the space/classroom; second, a presentation of the artistic works of Oteiza and Mondrán took place; and last, the exploration of the materials started. In addition to the diverse materials that were presented, some electronic devices and texts that were worked on in previous meetings were also available for students to interact with.

The students' instruction was to design a child-friendly school environment that could be expressed in a concrete or an abstract way. Students needed to show that the space took into account concerns and discussions suggested in the texts provided, as well as other literature brought in by the students. They had to review the texts that focused on the discussions about children's spaces and represent their opinions and observations on their artistic work/projects.

The pictures below show their projects in different stages of development (all pictures were taken by the author of this paper with the permission of the students):

Figure 1: Preparing the classroom

Figure 2: Some materials

Figure 3: Discovering the materials

Figure 4: Experiencing

Figure 5: Planning

Figure 6: Working

Figure 7: A work in progress

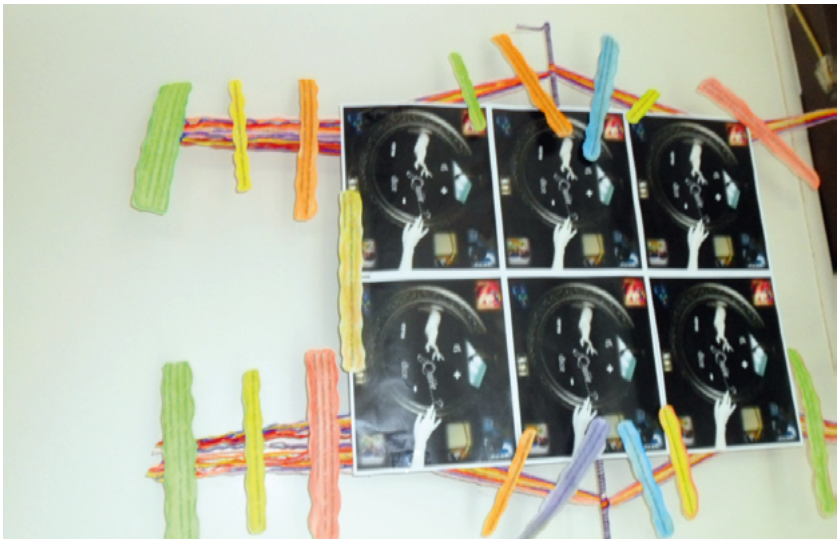
Figure 8: Another work in progress

Class 4: The creation of the children's space continued; by the end of the encounter, each of the students had to have prepared their sample

in the classroom space created and set by them. At the end of the session, a time to observe the works of other students was organised. Each student needed to choose the creation of a partner to interpret and to generate a reflection on her/his proposal. The reflection was shared in a forum of the virtual classroom to be discussed, too. In addition, each of the students made an interpretation of their own work, which was delivered to the teacher. Furthermore, that interpretation had to be related to the texts read and analysed, and also had to show the students' opinions and experiences that motivated them to create their projects. Additionally, all the different stages of their projects were part of the evaluation of the subject that included the creation of the child-friendly spaces, the debates, the reflection and the interpretation of a school environment design that started from listening to children's needs and respected the spaces, times and territories of childhood. Below, pictures of some of the final works are shared:

Figure 9: Some projects

Figure 10: Some more projects



In order to share the evaluation process, a piece of work by one first--semester student interpreting her own work is shown below:

A world for the child
Building livable environments is not easy, as the suggested activities of early childhood should not be carried out under the programmes and authoritarian control of adults; on the contrary, they should search to promote situations where children can play and be free in their growth. These places should allow children to interact with other children; children with adults; and children with teaching materials, and with natural environments, too. Exploration activities will have a greater impact if they are carried out in different environments, for example, outside the classroom, in green spaces, in contact with water, earth, and air, among others.

For Ceppi and Zini [1998] *the particular use of outdoor spaces where children can easily build and undo as much as they want is important. To remain in interaction with natural environments can be suggested through outdoor play.*

Thus, in my design of a space, nature is taken into account. Also, it is suggested to work with shadows and projections inside and

outside. All the experiences that children have in the environment allow them to prepare for life. Therefore, my model has a large outdoor space where children will be responsible for taking care of and picking vegetables and some fruits that they decide to plant.

In Reggio Emilia schools, there is a large central meeting point that becomes a square or a place to walk side; this place can be used as a space for representation, so that the centre that I design has a pool inside the centre with little fish that can be fed by children, and in addition to that there are small gardens and small benches suitable for children. [Cabanellas & Eslava, 2005]

The division of children into classrooms or groups according to their age will not be left aside; however, there is a place for some common spaces organised for meetings and relationships. [ibidem, p. 165] *So far, I have observed the need to create two blocks of classrooms where each educator will manage a certain age group, and the central part will be used for integrated activities where any adventure can originate.*

On top of that, Cabanellas and Eslava [2005] *suggest an acoustically isolated establishment to allow adequate rests or naps, so in my design, there is a room where comfortable furniture is placed for children to rest.*

Furthermore, the design includes areas for workshops, and there are also autonomous units for adults such as offices, a meeting room, dining rooms, and bathrooms, among others as proposed by Cabanellas and Eslava. [ibidem]

Similarly, there is a place built for locating and using mirrors as a game; mirrors of various sizes and shapes allow a child to explore and experiment through the reflection of his/her image. [ibidem]

Finally, children have the right to grow up and to learn in safe and pleasant places, where they can express their feelings and emotions.

Next, an example of an interpretation of the above work by a partner:

Theme: Reflective description of the ideal space for a children's centre.

The task of designing what we believe is the ideal children's space was a great challenge for everyone; from the works presented, I chose this project because it seems to me the one that can best explain

the distribution of the place, and it is really focused on the layout of a suitable environment for children. In general, the whole project has a central part in which the majority of the rooms will be located, and there is one room with an oval shape that leads to finding a point where everyone can group and converge to socialise. In addition, this space is at the centre of her work. The location of the spaces is neat, and that would allow children to enjoy a "physically organised pedagogical space", as elaborated by Cabanellas and Eslava. [ibidem]

In this space, significant attention is given to the natural environment that should surround children in an ideal place, which is why, in places where a room or workshop is not located, there are green spaces so children can get in touch with nature, enjoy the outdoors and experiment with all their senses.

In this space, workshops are placed around the centre of the school, which are equally surrounded by nature, wherein they can further develop their ability to imagine and to create. These rooms would follow the model described in the text "Children, Spaces and Relations", where there are workshops with specific people, apart from the educator, to guide children through the experiences they can have in that space and the creations they can make to be later exhibited in a place visible to the rest of the school. [Branzi et al., 1998]

This design catches my attention because it puts into practice several of the tips we have reviewed to create the right place for children; it gives them order along with the ability to choose, in a colourful environment surrounded by nature, that makes her whole school environment project a comfortable place for all who enter it: parents, educators and, most importantly, children.

The projects shown in the pictures above, as well as the two pieces of written work that two students submitted for the evaluation process, invite us to start a discussion on how the design of provocative educational environments may inform emancipatory practices in early childhood teacher training.

Some concluding thoughts

In this complex and uncertain world, teachers should be educated in a continuing process of questioning and reflection that allows them to face with certainty, beyond contents and disciplines, their

relations with practices, education and society that are central to training the new teachers and researchers who will transform education. In this light, education at university might prepare students to do research based on their own practices and intercultural relations in order to develop an autonomous and critical thinking approach that pushes emancipation. It is important, therefore, to encourage students to think critically. At the same time, this critical thinking might be linked to previous evidenced-based research and scientific thinking that allow students and teachers to build their knowledge and to contribute to the development of learning and teaching pedagogic practices (Tur Porres & Valdiviezo, 2018; Elen, 2016).

The arrangement of the environment, following the didactic strategy of educational provocation, is an interesting method of encouraging critical thinking and developing an emancipatory approach in teacher practices. In this educational experience, activities that occur in the space and time of the university subjects accompanied a reflective practice at school, too. In addition, it has been observed that provoking educational and critical environments allowed students to engage with a pedagogy of listening for/with children.

In this sense, engaging with practices in the school context and interacting with teachers and children allowed for the creation of conditions of participation while at the same time critically reflecting on "what" was going on inside the classroom regarding the interplay between the teacher, the students, the content and the children. The introduction of educational provocation insights helps to enhance teaching strategies to make any educational content potentially emancipatory, in which teaching stimulates learning. It is therefore important in this practice to account for the environment and educational provocation's approach as a way to bring the world of children into the classroom, as well as to engage with the individual and collective actions that allow for social/educational transformations.

Moreover, a conclusion from this educational practice is that emancipatory practices are not a matter of reaching certain aims or of fulfilling particular functions, but rather are a characteristic of the educational process and pedagogic practices at stake, in which the design of provocative educational environments might play an important role within teacher training. Since the aim of provocations in the Reggio Emilia approach allows for the development of a particular

learning disposition and potentiality that help with experiencing the construction of knowledge as a process and not as an outcome, it is suggested that educational provocations should be included as a teaching strategy in teacher training practices.

References

- Cabanellas, I. and Eslava, C. (eds.) (2005). *Territorios de la infancia. Diálogos entre arquitectura y pedagogía (Biblioteca infantil 9)*. Barcelona: Grao.
- Catini, E. (1999). El taller tiene una larga historia y se incluye dentro de un proceso educativo. La experiencia de los niños de Reggio Emilia. Interview to Loris Malaguzzi. In: Ministerio de Educación y Cultura, *Escuelas infantiles de Reggio Emilia. La inteligencia se construye usándola* (2nd ed., pp. 86–93). Madrid: Ediciones Morata, S.L.
- Castro Pérez, M. and Morales Ramírez, M.E. (2015). Los ambientes de aula que promueven el aprendizaje, desde la perspectiva de los niños y niñas escolares, *Revista Electrónica Educare*, *19*(3), 1–32.
- Ceppi, G. and Zini, M. (eds.) (1998). *Children, spaces, relations. Metaproject for an environment for young children*. Milan: Reggio Children and Comune di Reggio Emilia.
- Elen, J. (2016). *Entrevista Jan Elen: Integración de la investigación en la enseñanza,* www.youtube.com/watch?v=oMGF4IndfMQ
- Fraser, S. (2012). *Authentic childhood: Experiencing Reggio Emilia in the classroom* (3rd ed.). Toronto: Nelson Education.
- Gandini, L. (1998). Educational and caring spaces. In: C. Edwards, L. Gandini, G. Forman, *The hundred languages of children: The Reggio Emilia approach to early childhood education – Advanced reflections* (pp. 161–178). Greenwich: Ablex.
- Hoyuelos, A. (2005). La escuela, ámbito estético educativo. In: I. Cabanellas, C. Eslava (eds.), *Territorios de la infancia. Diálogos entre la arquitectura y la pedagogía* (pp. 166–175). Barcelona: Graó.
- Malaguzzi, L. (2001). *La educación infantil en Reggio Emilia* (3rd ed.). Barcelona: Octaedro.
- Ministerio de Educación (2014a). *Currículo de Educación Inicial.*
- Ministerio de Educación (2014b). *Guía metodológica para la implementación del currículo de Educación Inicial.*
- Rinaldi, C. (2009). El ambiente de la infancia. In: Reggio Children and Domus Academy Research Center, *Niños, espacios y relaciones: Metaproyecto de*

ambiente para la infancia (pp. 114–120). Buenos Aires: Red Solare School of Art and Comunication.

→ Schatzki, T. R. (2012). A Primer on Practices. Theory and Research. In: J. Higgs, R. Barnett, S. Billett, M. Hutchings, F. Trede (eds.), *Practice-Based Education. Perspectives and Strategies* , (pp. 13–26). Rotterdam: Sense Publishers.

→ Stegelin, D. and Cecconi, L. (2013). Kindergarten Environments in Reggio Emilia, Bologna, Modena, and Parma, Italy. In Search of Quality. In: S.C. Wortham (ed.), *Common Characteristics and Unique Qualities in Preschool Programs, Educating the Young Child* (pp. 47–54). Dordrecht: Springer.

→ Tur Porres, G. and Valdiviezo Ramirez, E. (2018). *Docencia Académica, Investigación y Calidad: Retos y Desafíos de la Educación Superior en el Ecuador*. Azogues: Universidad Nacional de Educación

→ Universidad Nacional de Educación (2017). *Modelo pedagógico de la UNAE*.

→ Vecchi, V. (2013). *Arte y creatividad en Reggio Emilia*. Madrid: Morata.

Teaching Geometry at University
Dialectics of Classics and Modernity

DOI: 10.47050/66515314.242–257

Aliya Bukusheva

Technological developments over the past decade have led not only to the formation of "new mathematics", but also to new challenges in the use of technology in the teaching and learning of geometry. The development of big data analysis tools and artificial intelligence methods has revived interest in modeling methods. Therefore, the interdisciplinary approach, which includes geometric education, has become of great interest to prospective mathematics teachers. The interdisciplinary connections between geometry and other subjects are not always properly reflected in teaching geometry at university. Unfortunately, nowadays, the distance between abstract geometry and its application area is noticeably increasing. A student sees the geometrical objects he studies as independent entities that have nothing to do with objective reality. Achieving interdisciplinarity at school means redefining what teacher mathematics education can be. At the higher education level, the interdisciplinary approach manifests itself most profoundly in students' research work. In the present chapter, some aspects of teaching geometry to students (prospective mathematics teachers) based on the interdisciplinary approach are considered.

Keywords:
teaching geometry
teacher education
teacher preparation

Introduction

The process of teaching geometry at pedagogical as well as classical universities has deep roots and strong enduring traditions that have developed and changed according to the needs and demands of society, based on mathematical, psychological, and pedagogical scientific research.

Modern geometry is divided, both by the main objects of study and by the methods used, into many disciplines that have both fundamental and applied value. All share a unified geometrical approach, which consists in the fact that attention is primarily paid to the qualitative characteristics of these objects, and also in the quest for clarity at all stages of research, from the problem's definition to the formulation of the result. Geometry has numerous applications, which in turn stimulate its development.

Currently, there are two main sources of geometry's development. First, in the last thirty years, geometry has changed its content, turning from classical geometry to interdisciplinary geometry, acquiring a qualitatively new face. The geometric view of the world permeates all modern mathematics; in most of its sections, geometric language is used, geometric methods are applied, and mathematical objects are geometrised. Often, the penetration of geometric ideas leads to the creation of new theories, setting new problems.

Second, geometry has become the main language of the natural sciences, especially physics. Also, the application of software packages allows the building of mathematical and computer models, as a result of which we can master fundamental knowledge and learn its practical application.

Based on an analysis of the research literature published since 2008, the survey of ICME-13 emphasises seven major research threads. These are the use of theories in geometry education research, the nature of visuospatial reasoning, the role of diagrams and gestures, the role of digital technologies, the teaching and learning of definitions, the teaching and learning of the proving process, and moves beyond traditional Euclidean approaches (Sinclair et al., 2017).

Technology in geometry education has become relatively mainstream, yet there is still not enough research into its specific effects. Technology continues to evolve and rapidly change both the everyday world and the classroom. Students and teachers are

increasingly using digital tools throughout the day. It is thus becoming more and more necessary to better understand how new and emerging digital tools can be used effectively.

The usage of some technologies, such as dynamic geometry environments systems, enriches the content of mathematics education and introduces new opportunities in the learning process. This increases the relevance of methodological problems of the determination of the content, location, and nature of the mathematical software packages used in the structure of mathematics education.

The purpose of the present study is to examine the interplay between teaching geometry and interdisciplinary mathematics to students (prospective mathematics teachers). In the following sections, we present the relevance of geometric education, experimental mathematics, and the complementarity principle that combines these two trends in the education of mathematics teachers. The complementarity principle ensures that the training of the future mathematics teacher is interdisciplinary. The methodology of the research consists of the analysis and generalisation of the scientific research results of Russian and foreign scientists specialised in the sphere of teaching geometry in the framework of higher education and is based on productive and research approaches.

Theoretical framework

Nowadays, the following two trends in the process of teaching geometry at university can be distinguished.

The first one is connected with the situation wherein modern geometry, as well as other fields of mathematics, applies digital technology to solve its problems. Thus, computer geometric modeling has developed considerably during the last decades. Computer methods of problem solving actively penetrate numerous applications of modern geometry: engineering, design, pattern recognition, etc. Many new programmes have been developed which allow the visualisation of geometric objects, the demonstration of their features, and set up computer experiments to test hypotheses. According to this trend, "experimental mathematics", with its own principles, methods, and criteria, is becoming more developed and acceptable.

Many scientists have paid attention to the unity of the experimental and theoretical principles of mathematics as well as to the significance

of these principles for both mathematical science and education. Thus, much prominence to mathematics' experimental methods is given in V.I. Arnold's works. One cannot help but refer to Arnold's statement in this regard: "Mathematics is an experimental science. It is definitely a part of theoretical Physics and Science. [...] The ability to build up adequate mathematical models should be a significant and integral part of Mathematics education. Success depends not only on the application of ready-made decisions but mainly on the Mathematical approach to the real-world phenomena" (Arnold, 1997). Undoubtedly, the experiment is the main source of scientific cognition. An experimental approach in mathematics has been developed and spread out due to computers.

The computer model serves as a means of the relation and essence of geometric objects. Accordingly, models of geometric objects are essential tools for research, carrying out experiments, proving hypotheses, and clarifying facts in the process of problem solving. These models allow us to distinguish consistent patterns and formulate generalised issues.

From a psychological point of view, Vygotsky showed the role of tools in the development of a child: external objects (tools) are the main way to assist a person with their intellectual operations (Vygotsky, 1994 [1934]). Vygotsky and Leontyev studied a mechanism of internalisation, whereby if a student does not have some intellectual operation, it is necessary to "carry it outwards". After performing actions with this external reflection "by hand", external operations will be automatically transferred to internal ones, and after internalisation, a new psychological tool will be formed (Leontiev, 2009 [1977]).

From a mathematical point of view, Poincaré noted that mathematics is based on operating with external tools: "What is geometry for a philosopher? This is the study of a certain group. Which one? Groups of rigid body motions. How do you define this group without forcing some rigid bodies?" (Poincaré, 1921). Following Vygotsky's idea about replacing the tools of the external world with signs, you can look at the language means of mathematics from this point of view. The emergence of a geometric view of algebraic concepts, therefore, is a way to translate the mechanisms of visual thinking into an internal plan of new algebraic ideas.

Among all the approaches to technological support in learning mathematics, dynamic geometry is the most successful. This fact

is confirmed by a large number of implementations of this idea and the large number of teachers and students taking advantage of its possibilities. Using dynamic geometry, teachers and authors of educational materials solve various problems, from quick drawings of attractive figures to the preparation of tasks for mathematical Olympiads (Chartouny et al., 2019; Papert, 1980; Pozdniakov, 2019; Thomas & Palmer, 2014).

Teaching modern systems of computer mathematics provides students with the following opportunities. Firstly, it helps to form skills in setting and solving computer tasks. Secondly, knowledge of modern systems of computer mathematics allows the use of computers as the main cognition tool. Thirdly, the organisation of searches and scientific activity greatly depends on one's ability to work with modern systems of computer mathematics. Moreover, the process of computer mathematics systems teaching creates new opportunities for student--teacher and student-student correlations. Also, this process enables each student to maximise their intellectual potential.

Nowadays, computer research and experiments are widely used in the process of teaching mathematics at school and university. However, we should underline that a number of drawbacks have been highlighted in studies focusing on the application of interactive mathematical fields in the teaching process. One of the major drawbacks is that the so-called "experimental-theoretical gap" occurs in students' minds. This results in a decrease in students' motivation to find a deductive solution and in a lack of interest in a task-based approach. It maintains the idea that a careful and thoughtful pedagogical analysis and approach should be introduced at school as well as at university when it comes to computer research and experimentation. How should we use technologies in our classes? But simultaneously, another question arises: How should technologies improve what we intend to do in our classes? Teaching is, of course, a priority. And technologies are not the main aim in and of themselves. Ultimately, technology is a useful tool for students who want to advance their educational experience. Besides this, however, technology is of great assistance in the process of education.

The computer is a definite intermediary between the practical and theoretical levels of mathematical understanding and acceptance. It is necessary to bear in mind that the logic of the presentation

of a systematic course does not refer very much to the process of knowledge acquisition or the role of geometric imagination and intuition within this process. A teacher needs to set research tasks in the way they enable their students to rely on their cognitive skills, not on the computer. The usage of applied programs during students' studies should contribute to their intellectual development but not replace it.

The second trend shows us that geometry permeates almost all spheres of human activity. What is more, geometry is inextricably linked with our ideas of beauty and harmony, rigorous proof, and impeccable logical structure. And to top it all, the richness of human vision significantly increases our opportunities to analyse it. Our vision allows us to detect complex relationships that are not obvious without a visual image of the studied objects. In all likelihood, these factors stimulate us to draw a picture (scheme, diagram or plan) when we aim to solve a difficult problem. In short, we either tend to find a successful visualisation or build a geometric model, i.e. we undertake a geometric task.

Geometric ideas and concepts build a solid foundation of different fields of modern mathematics. The geometric language is the basic and common language of mathematics representatives as well as representatives of other scientific schools. Shaped at school, conceptual and intuitive notions of space serve as the primary basis for subsequent productive generalisations in various fields of scientific knowledge – from generalised and phase spaces in physics to semantic, mental and other spaces in psychology.

Nowadays, geometry plays a unique and exceptional role in school education. Children get to know rigorous geometric proofs in geometry lessons. They learn to think logically and make conclusions based on premises.

At the same time, school geometry demonstrates visual mathematics, which is mainly based on a detailed study of the qualitative properties of geometric objects rather than on formulas. Such a combination of rigour and clarity establishes the basis of a natural scientific picture of the world. Thus, geometry is an essential part of scientific study.

A geometric view of the world pervades all modern mathematics. First of all, the major part of mathematics fields uses geometric language and applies geometric methods. Very often, the penetration

of geometric ideas into other fields of mathematics leads to the creation of new theories and the formulation of new problems not only in mathematics but also in theoretical physics. Undoubtedly, geometry plays an exceptional role in modern education. Geometry familiarises students with a variety of spatial forms, provides a method of scientific knowledge, and promotes the development of logical thinking. The educational, developing and applied values of geometry are not fading but, on the contrary, are increasing. Classical geometric ideas and concepts form the basis of various fields of modern mathematics, as geometric language and methods are used in the majority of them. Moreover, the geometrisation of many mathematical objects can be noticed and stated now.

The study

The combination of these two trends is possible based on the general scientific principle of complementarity formulated by N. Bohr. This principle states that opposites do not contradict but rather complement each other.

The principle of complementarity is designed to take into account the properties of an object that are opposite yet complementing each other in a single system. The most important point is to understand the existence of a single system. The principle of complementarity implies that there is a single interpretation of the object under study, that is, there is a single truth, but researchers are forced to move to it from different sides. Identifying two significantly different but interrelated levels in the process of learning geometry (empirical and theoretical), we aim to consider the problem of the correlation of approaches in teaching geometry in higher education. The idea of complementarity appears in the context of solving this problem.

The principle of complementarity in teaching allows us:

1. to solve the didactic problem of developing new methods of teaching geometry based on the use of experiments, the figurative type of information processing, and the traditional approach (without a computer) to consider the problem, research, and experimental methods in unity,
2. to add specifically human elements to the algorithmic "thinking" of modern computers (the computer is considered as a research tool), and

3. to maintain the balance of fundamental training (knowledge of the axiomatic method, logical methods for proving theorems, etc.) with modern requirements for the graduate.

The principle of complementarity will thus allow the teacher to be qualified in interdisciplinary mathematics.

The world is currently undergoing great changes which require a corresponding emphasis on certain issues and topics. Certainly, these issues and topics can best be revealed in the process of teaching both traditional and new subjects, as well as while teaching subject sections and different themes.

Most of the problems we can find in reality are related to more than one area of disciplinary knowledge. This means that they can be considered as interdisciplinary problems. However, when these problems are approached in school, the approach tends to focus on the knowledge of one specific subject. In particular, and as the review by Williams et al. (2016) shows, interdisciplinarity in mathematics education is a relatively under-developed research subfield.

Children's perception of the world as a list of unrelated subjects is one of the urgent problems of modern school education. Very often, schoolchildren do not understand how to apply the acquired knowledge outside the lesson. It is obvious that, in the process of teaching traditional subjects, the contents of these subjects are isolated from each other. Today, there is often very little communication between disciplines. As a result, an incomplete formation of a holistic picture of the world is created in the children's minds. The idea of interdisciplinarity is to combine multiple academic disciplines into one activity. The literature offers a variety of ways to understand interdisciplinarity (e.g. Rocha, 2019; Ferri & Mousoulides, 2017). We use a definition formulated by Roth, who stated the following: "Interdisciplinarity denotes the fact, quality, or condition that pertains to two or more academic fields or branches of learning. Interdisciplinary projects tend to cross the traditional boundaries between academic disciplines" (2014, p. 317).

The implementation of an interdisciplinary approach in teaching is aimed at creating an educational environment in which students perceive the world as whole and unique, but not as a list of individual subjects studied at school.

To overcome this trend, the idea of interdisciplinary education has long been brainstormed and shared in the pedagogical community. Undoubtedly, interdisciplinary education focuses on the formation of an integral picture of the world in the child's mind. However, the practical implementation of this concept faces significant obstacles. First and foremost, the predominance of the subject-oriented approach at modern schools hampers this process.

A teacher needs to be aware of the space of interdisciplinary ideas to shift the vector of school education from a subject--oriented to an interdisciplinary one. Interdisciplinarity at school can and should be initialised and taught by a teacher. This means that an interdisciplinary approach should be applied in the framework of prospective teacher training.

Results

Undergraduate (bachelor level) and postgraduate (Master's level) mathematics teacher training in Russia is provided at universities and pedagogical institutes. At the level of bachelor studies at Saratov State University, graduates are expected to acquire the following theoretical knowledge: an awareness of the psychological interpretation of human development, upbringing, and education; the principles of creating and designing educational and didactic environments in secondary education; a good awareness of the organisational characteristics of the school system as well as the institutional principles and rules of the school; and the content of mathematics and the methods of teaching mathematics. Graduates are also expected to acquire the theoretical knowledge content of the one domain specialisation that they teach.

An experimental research approach to the study of geometry at the university is implemented by us in the classes on geometry (1st and 3rd years) as well as on the subject "Fundamentals of research activities in the field of mathematical education" (from 2nd to 4th years). The use of computer research and experiments when teaching mathematics in the framework of higher education allows us to improve the content of academic courses, increase the number of tasks and exercises for self-study, develop practical skills for conducting mathematical reasoning, and simulate and illustrate the concepts and objects being studied. These aspects will give students an opportunity to explore certain topics thoroughly, motivate them, and increase

interest in the discipline as a whole. Besides, the use of computer tools can positively affect not only teaching methods but also the content of academic disciplines.

On the one hand, in practical classes on analytical geometry and differential geometry, in the framework of extracurricular work, students solve educational and research tasks using a computer experiment. The main software used is GeoGebra and Wolfram Mathematica. On the other hand, students of the subject "Fundamentals of research activities in the field of mathematics education", in particular, learn in the classroom to use an experimental approach in school geometry.

The methodology for the organisation of experimental research activities of future teachers of geometry is as follows:

1. the selection of content, taking into account the following requirements: the possibility of developing a cognitive interest in the study of geometry; the possibility of developing logical and imaginative thinking; and the possibility of applying the research aspect in the process of solving geometric problems;
2. the choice of forms of organisation of the educational activities of future bachelor studies students, based on the educational-methodical approach to solving geometric problems, independent work in the framework of academic disciplines, and performing term papers and final qualification works;
3. the selection of productive (problematic, search, research) teaching methods (Bryman, 2004).

We adhere to the tiered model of research training developed by Banchi and Bell (2008):

Level I: Confirmation Inquiry. This level is the most familiar and the easiest to do. At this level, you will develop both the questions and a procedure that will guide students through an activity with known results.

Level II: Structured Inquiry. This level is similar to Level I, but also involves developing a foundation for inquiry and critical thinking skills. You will provide an initial question and an outlined procedure for students to follow. It is important, however, that the results are unknown.

Level III: Guided Inquiry. This level allows students to take more ownership of the experiment and findings. They are responsible for designing the procedure and following it to answer the question that you provided. Learners build upon the skills gained from earlier levels, as well as incorporate more problem solving and critical thinking skills. Because learners now have more freedom in developing the procedure and finding useful content, it is important for you to provide guidance and feedback where necessary.

Level IV: Open Inquiry. At the highest level of inquiry-based learning, within broad parameters, learners establish ownership of the experiment and findings. They are allowed to choose a topic or idea that is of interest and begin to formulate their own research question(s) and design a procedure to conduct the study. Once the study is complete, you may have them prepare a report or presentation detailing the findings and results.

It is reasonable to develop new content for studies through a system of tasks. In other words, a task-based approach should also be taken into consideration.

It is a well-known fact that problem solving is a crucial aspect of educational activity. The task-based approach is an educational activity that requires the involvement of all members (objects) of the educational process. This approach also includes the application of a system of diverse tasks and their solutions. This means not only certain task systems but also systems that ensure the success of their solution are defined within the task-based approach. The Polish mathematician Maciej Klakla has paid much attention to and thoroughly examined multi-stage mathematical tasks (Klakla, 2003). He regards them as the main source for the formation of the creative mathematical activity of Polish students in schools specialised in the study of mathematics.

Let us give an example of problems in analytic geometry, the solution of which we can find using the dynamic geometry of GeoGebra. The task is to experimentally verify and prove the following statements: (1) tangents to the hyperbola form equal triangles with asymptotes; and (2) the segment of any tangent hyperbola enclosed between the asymptotes is divided in half at the point of tangency. To conduct a computer experiment on a GeoGebra graphic canvas, in accordance

with the condition of the problem, we construct a hyperbola, asymptotes, and a tangent at an arbitrary point. Moving the point along the hyperbola, it will be seen that the area of the triangle remains constant. The hypothesis that follows from this is that tangents to a hyperbola form equal triangles with asymptotes. Further, students need to theoretically justify the assumptions obtained.

These tasks belong to Level I, i.e. students verify the validity of known research results. Based on the solved problem, the teacher, in an interview with students, identifies the composition of the goal-setting method: (1) put forward a hypothesis, (2) draw up a hypothesis testing plan, and (3) divide the task into subtasks (stages of the plan's implementation). On the Euclidean plane (in space), many other similar problems can also be given. Using application programs, students can independently discover patterns between geometric objects.

The tasks of Level II (Structured Inquiry) make it possible to evaluate and diagnose the knowledge of factual material (basic concepts, algorithms, facts) and the ability to correctly use special terms and concepts and to recognise objects of study within a specific section of the discipline. For example, (1) construct bending: a simple piece of a cylinder on a simple piece of a plane; a simple piece of a plane onto a simple piece of a cone; a catenoid to a helicoid; (2) on a hyperbolic paraboloid, visualise rectilinear generators passing through a dynamically given point on the surface, and set the position of the point with a two-dimensional slider to study the mutual position of the generators of one family.

Solving differential geometry problems (curves and surfaces in Euclidean space) using application programmes is more consistent with Level III (Structured Inquiry). Tasks of a creative level allow us to evaluate and diagnose skills, integrate the knowledge of various fields, and argue our point of view. Let us examine the example of the problem of constructing geodesic surfaces. It is recommended to study the behaviour of geodesics on a torus, sphere, and cylinder embedded in a Euclidean three-dimensional space as computer research.

The interdisciplinary component of students' research work helps to improve the quality of their mathematical training. Students form ideas about the types of interdisciplinary connections between mathematics (geometry) and other disciplines, the ability to apply

them in solving problems, and increase their motivation and enhance their educational and cognitive activities. In studies on convergent, information-cognitive technologies, it is noted that the basis of the new system of organisation of science and education is interdisciplinarity (Bainbridge & Roco, 2005).

What should be done to make knowledge more interdisciplinary? It is appropriate initially to consider ways of identifying links between fields of science, as knowledge goes beyond the framework of one discipline. A powerful way to illustrate ideas and instantly make them relevant to students is to emphasise the interdisciplinary application of ideas, meta-ideas, methods, and tools.

In 2019, a campaign for teachers was held in Russia. The "5 by 5" campaign represents training for teachers in the format of the Russian National Examination (RNE) and includes preparation for five school subjects. This campaign is held in support of graduates who are going to take the RNE. Moreover, the campaign helps to identify and support teachers with great erudition, high intelligence, and a broad outlook. It gives much prominence to those who clearly understand interdisciplinary connections and are good at their subjects as well as at various subjects from other fields of science. The teacher has a completely different view of his subject among other subjects and even gets a new understanding and perception of the problems discussed in the school course.

A question therefore arises: how ready are students (prospective mathematics teachers) to use an interdisciplinary approach in teaching schoolchildren?

We conducted an empirical study with students in the 2nd to 4th years of their study. In the "Fundamentals of research activities in the field of mathematical education" classes, students studied, became acquainted with, and solved interdisciplinary tasks from the fields of mathematics (geometry), physics and computer science at the school level.

These are some examples of their tasks:

1. The coefficients of the equation of the line $ax + by + c = 0$ and the coordinates of point $A(x_a, y_a)$ are given. Find point B, which is a reflection of point A relative to a given line.
   Input: the coefficients of the equation of the straight line a, b, c are entered from the keyboard, then the coordinates of point A.

The initial data are integers and modulo not exceeding 1000. Output: print the coordinates of point B up to the fifth decimal place.

2. The depth of a pond is two metres. Determine the apparent depth of the pond if its bottom is examined by bending over the water and looking vertically down. The refractive index of water is 4/3. The angles are considered small.
3. A plane flies in calm weather with a speed v horizontally at a height h. The pilot must dump his cargo at a point in front of the aircraft. At what angle to the horizon should he see the target at the moment of dropping the load? Do not consider air resistance.

Such tasks can be of great help to students by providing them with a clear understanding of the fact that many problems can be solved if we consider them from the point of view of different subjects. Also, the creation of a project makes it possible for schoolchildren to realise that the knowledge and skills acquired and formed in the course (educational process) give a better understanding of the problem. Besides, the project forms a new understanding (idea/vision) that cannot be achieved without mastering the content of several subjects.

The processing of our study was carried out using the Wilcoxon test. The findings in this study revealed that second-year students solved interdisciplinary tasks in all three domains with great interest. Perhaps this is because students still remembered the school curriculum well. The third-year students solved all problems with approximately equal interest. Fourth-year students showed better results and showed greater interest in only two subjects: mathematics and computer science. A student (prospective teacher) has a completely different view of his domain among other domains and even gains a new understanding and perception of the problems discussed in the school course. Our study will continue, but the preliminary conclusions are as follows: the students were able to see the connection of mathematics with other subjects, and they expressed an interest in and willingness to develop such new disciplines as artificial intelligence and data analysis.

Discussion

Geometric activity (of various categories of students), as a rule, has a complex structure. On the one hand, it is the formation and development of spatial representations that reflect the perception of a real physical space and the design and transformation of the corresponding mathematical model – geometric space and its ideal objects in figurative, symbolic forms. On the other hand, it is geometric thinking, starting with the simplest methods of classification, the analysis of geometric shapes, intuitive and logical means of proving their properties, and ending with formal logical reasoning in the framework of the axiomatic method. The emergence of computers in everyday life has opened up opportunities for the technological support of learning methods that were previously technologically inefficient. The development of computer tools allows you to significantly change all the components of the methodological system of teaching geometry. It is necessary, however, to continue searching for new forms of human-computer interactions aimed at developing students and their deep understanding of mathematics.

References

- Arnold, V.I. (1997). Mathematics and mathematical education in the modern world, *Mathematical Education*, *2*, 109–112.
- Bainbridge, M.S. and Roco, M.C. (2005). *Managing Nano-Bio-Info-Cogno Innovations: converging technologies in society*. Dordrecht: Springer.
- Banchi, H. and Bell, R. (2008). The many levels of inquiry, *Science and Children*, *46*(2), 26–29.
- Bryman, A. (2004). *Social research methods*. Oxford: Oxford University Press.
- Chartouny, M., Iman, O. and Raad, A.-N. (2019). A model of the instrumentation process in dynamic geometry. In: U.T. Jankvist, M. van den Heuvel-Panhuizen, M. Veldhuis (eds.), *Proceedings of the Eleventh Congress of the European Society for Research in Mathematics Education* (pp. 769–776). Utrecht: Freudenthal Group & Freudenthal Institute, Utrecht University and ERME.
- Ferri, R. and Mousoulides, N. (2017). Mathematical modelling as a prototype for interdisciplinary mathematics education? Theoretical reflections, *CERME 10*, https://hal.archives-ouvertes.fr/hal-01933490
- Klyaklya, M. (2003). *Formation of the creative mathematical activity of students in classes with in-depth study of mathematics in Polish schools*. Moscow: MGPU.

- Leontiev, A. (2009). *The Development of Mind*, www.marxists.org/admin/books/activity-theory/leontyev/development-mind.pdf
- Papert, S. (1980). *Mindstorms: Children, Computers, and Powerful Ideas*. New York: Basic Books.
- Poincaré, H. (1921). *The Foundations of Science*. New York: Science Press.
- Pozdniakov, S. (2019). Computers in the productive learning of mathematics. In: A. Shvarts (ed.), *Proceedings of the PME and Yandex Russian conference: Technology and Psychology for Mathematics Education* (pp. 77–90). Moscow: HSE Publishing House.
- Rocha, H. (2019). Interdisciplinary tasks: Pre-service teachers' choices and approaches. In: L. Leite, E. Oldham, L. Carvalho, A.-S. Afonso, F. Viseu, L. Dourado, H.-M. Martinho (eds.), *Proceedings of the ATEE Winter Conference – Science and mathematics education in the 21st century* (pp. 82–93). Brussels: ATEE–CIEd.
- Roth, W.-M. (2014). Interdisciplinary approaches in mathematics education. In: S. Lerman (ed.), *Encyclopedia of mathematics education* (pp. 317–320). Berlin, Heidelberg: Springer.
- Sinclair, N., Bartolini Bussi M.G., Villiers, M. de, Jones, K., Kortenkamp, U., Leung A. and Owens, K. (2017). Geometry education, including the use of new technologies: a survey of recent research. In: G. Kaiser (ed.), *Proceedings of the 13th International Congress on Mathematical Education, ICME-13 Monographs* (pp. 277–287). Cham: Springer.
- Thomas, M.O.J. and Palmer, J.M. (2014). Teaching with digital technology: obstacles and opportunities. In: A. Clark-Wilson, O. Robutti, N. Sinclair (eds.), *The mathematics teacher in the digital era an international perspective on technology focused professional development. An International Perspective on Technology Focused Professional Development* (pp. 71–89). Dordrecht: Springer.
- Vygotsky, L.S. and Luria A.R. (1994 [1934]). Tool and symbol in child development. In: R. van der Veer, J. Valsiner, *The Vygotsky Reader*. Hoboken: Wiley--Blackwell.
- Williams, J., Roth, W.-M., Swanson, D., Doig B., Groves, S., Omuvwie, M., Borromeo Ferri R. and Mousoulides, N. (2016). *Interdisciplinary mathematics education: a state of the art (ICME-13 topical surveys)*. Dordrecht: Springer.

Training Quality Teachers
The Challenge of Design Skill

DOI: 10.47050/66515314.258–283

Laura Sara Agrati, Viviana Vinci

Designing teaching interventions is considered one of the main skills expected of teachers, a distinctive and peculiar trait of their profession. Learning design is linked to teaching as "the description of the teaching–learning process that takes place in a learning unit" and, as such, it is assumed as a concept, a description of specific sequences, but also as techniques used to realise these sequences. After recalling the characteristics of the main educational design models as well as the cyclical process of training teachers in design skills, the present chapter[1] describes "Eurodesign" as an explanatory example of design skills, a topic of the Italian National Teaching Training Plan (2016–2019) and a priority of the European professional development system. It focuses on the didactic model of the professional course on "European Design in the school of autonomy" – the close connection between theory (design models) and practice (project activities) in the co-participated elaboration of real intervention devices (prototypes) through simulated experience.

Keywords:
design skill
teaching quality
European Design

1 Laura Agrati is the author of the sections "The design skill of teachers", "Quality training in design skills" and "Findings and conclusion" in this chapter. Viviana Vinci is the author of the section "Professional courses on design: The European Design case" and the subsection "Survey on teachers' representations of design".

The design skill of teachers

Designing teaching interventions is considered one of the main skills expected of teachers (Law 13/07/2015, No. 107, European Commission, 2013), a distinctive and peculiar trait of their profession (Loughran, 2006; Laurillard, 2012; Snelbeker, 1987; Freiberg, 2002; Nikolaeva, 2012).

As a general rule, **design** refers to: a. an arrangement, "the general arrangement of the different parts of something that is made, such as a building, book, machine, etc". (Oxford, 2010, p. 411); b. a drawing/plan/model, "the art or process of deciding how something will look, work, etc. by drawing plans, making models, etc". (Oxford, 2010, p. 411); c. a pattern, "an arrangement of lines and shapes as a decoration" (Oxford, 2010, p. 411); or d. an intention, in other words, a plan to do something.

Within the teaching and educational semantic field, the expression "learning design" indicates preparation (a), a drawing/a planning (b), and/or an intention (d). Although in English, within this context of meanings, it is often rendered with **design**, in Italian and French, *progettare* (lit. "throw forward", which highlights the forecasting component, the "intention", see (c) and **planifier** (lit. "make a plan", which rather emphasises the operational component, the "drawing/plan/model", see (b), respectively, are used more often.

The technical construct of **learning design** is inevitably connected to that of **teaching design**; it could be defined as "the description of the teaching-learning process that takes place in a learning unit (a course, a lesson or any other planned learning event)" (Koper, 2006, p. 78). Britain (2004) invites us to associate **learning design** with a concept, a description of specific sequences, or some techniques used to realise these sequences.

Regardless of the field of meanings, but on the basis of a linear pedagogical model, with technical rationality (Taba, 1962; Skinner, 1954), **design** can be considered an activity producing as its **output** the description of an artifact (such as a project) including sufficient information to build/create and meet specifications given in its **input** (such as aims, objectives, limitations to be respected) (Rossi & Toppano, 2009, p. 57); it would be "a mental and/or material representation of an object/activity (such as a didactic action, an educational

intervention)" (Rossi & Toppano, 2009, p. 11), functional to its effective realisation.

ADDIE, an acronym for the five phases of instructional design, is a well-known and interactive but linear model (Branson et al., 1975):

Analyse – the collection of information on learners (e.g. how they access the content), the tasks to be completed and the general objectives of the project;

Design – project creation, meeting between information collected and didactic design models, advance explanations of how learning will take place;

Develop – the choice of activities to be implemented;

Implement – check if the materials are functional and appropriate for learners;

Evaluate – verify whether the materials allow the stability objectives (summative (e)) to be achieved and if it is possible to improve the entire process (formative (e)).

Walter Dick et al. (2005) developed an interactive and parallel version of ADDIE for instructional design: identifying the instructional goal; conduct an instructional analysis (e.g. what the student must be able to do to perform a certain task); analyse learners and contexts; write performance objectives (behaviours, conditions and criteria); develop an assessment instrument (e.g. use of pre-/post-testing); develop an instructional strategy (e.g. content presentation, student participation, assessment); select instructional materials; conduct a formative evaluation of instructions (areas for improvement); revise instructions; and conduct a summative evaluation.

The literature offers other descriptive models of instructional design for teachers[2], such as "backwards design" and "active learning". The framework of backwards design (Wiggins & McTighe, 1998, 2008), centered on the curriculum, indicates three moments:

2 Very often associated with the behaviour modification intervention in a military environment (Branson et al., 1975) and inspired by Skinnerian behaviorism and learning by program by B. Bloom and R. Mager, the instructional design was articulated on the basis of the learning areas (R. Gagne's "nine events"), the effectiveness of the teaching materials (M. Scriven), the presentation methods (D. Merrill), up to the increasing centrality of the media, intended both as technological tools and as a "learning environment" (Reiser & Dempsey, 2012).

1. identify the results desired (**learning objective/outcomes**);
2. determine acceptable levels of evidence (**assessment and feedback**);
3. plan learning experience and instruction (**instructions**).

Fink, from the active learning perspective of Mantyla (1999), notes some essential components of effective active learning activities in an online learning environment or classroom (2003, 2005):

4. a definite beginning and ending (**timing**);
5. a clear purpose and a learning objective (**learning objectives** – outcomes);
6. complete and understandable directions (**instructions** – learning activities);
7. a plan for assessing the objective(s) and providing feedback to students (**assessment and feedback**);
8. a description of the technology or tool(s) used in the exercise (**mediation**).

The characteristics of the four models are summarised, using neutral language, in the following comparative table (Table 1).

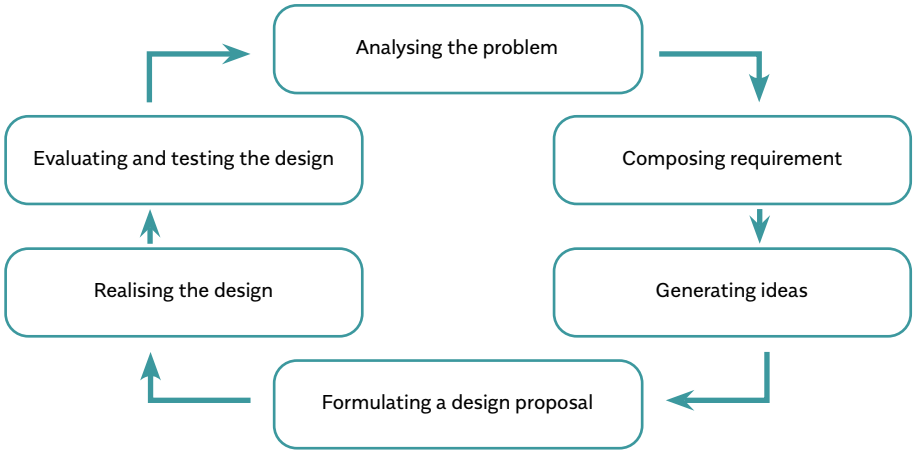
Table 1. Comparison of the phases in the main design models

PHASE	ADDIE (BRANSON ET AL., 1975)	ADDIE II (DICK ET AL., 2005)	BACKWARDS (WIGGINS & MCTIGHE, 1998)	ACTIVE LEARNING (FINK, 2003)
1.	learning outcomes	learning outcomes	learning outcomes	timing
2.	learning outcomes	learning outcomes	assessment	learning outcomes
3.	instructions	learning outcomes	instructions	instructions
4.	assessment	learning outcomes		assessment
5.	assessment	assessment		mediation
6.		instructions		
7.		mediation		
8.		assessment		
9.		assessment		
10.		assessment		

Quality training in design skills

In 1987, Snelbecker was already referring to a "curious paradox": "despite expressions of concern about the quality of instruction offered in schools, and despite the existence of considerable research and theory in the instructional design literature which might be of value for teachers, there seems to be a "gap" between the teacher education literature and the instructional design literature" (p. 33). For this reason, the author focused on perspectives and problems "in helping teachers to learn and to use instructional design approaches and techniques" (Snelbecker, 1987, p. 33). From the point of view of the quality of teaching teachers, Frederik and Sonneveld (2009, p. 220; 2007) remarked that learning design "is usually described in literature as a cyclic process" (see Figure 1).

Figure 1. The "cyclic process" of the learning quality design



Source: Roozenburg & Eekels, 1995.

This process entails the following:

1. trace the entire design process with reference to a specific situation ('case study');
2. reflect retrospectively on the process and extrapolation of the model ('mental') as a scaffold for similar activities;

3. focus attention on specific "segments" of the process to instruct students on how to proceed, e.g. generate ideas, analyze the problem, etc.;
4. finally, retrace the entire design process without referring to such a specific situation as in point 1.

This suggests that, unlike the analytical linear model (ADDIE or Backwards), which always starts from the outcomes and always arrives at the evaluation, the global cyclical model allows the teacher in training first to grasp the underlying process in an intuitive way (1), then encourage a reflective look back at it (2), and finally conduct an analysis of its parts (3) and strengthen the initial intuition (4).

Furthermore, it seems applicable beyond the actual design process proposed (1), which may in fact vary due to basic pedagogy.

Boosting Teacher Quality Report: Pathways to Effective Policies (EC, 2018) underlines that the development of a national framework of teacher skills, considered "high-level learning professionals", is a key element for improving the quality of teaching.

According to this, in addition to working in the learning community of their school, teachers should also be part of wider professional networks – *networked schools*, "learning ecosystems" at the "meso" level – which allow them to connect and support collective learning and the innovation of teachers beyond their work in individual schools (creation and exchange of knowledge between schools, but also differentiation of roles in terms of career, with expert teachers who take on coordinating roles both inside and outside their school). The new profile of teachers, emerging from international policies, therefore becomes that of a professional capable of working online and collaboratively with colleagues, parents and other professionals (Hammond, 2010; OECD, 2014), of implementing effective interventions (Stronge, 2018) and of making flexible choices and interventions that are responsive to the principle of autonomy (Schleicher, 2016) and differentiated according to the specificities of the contexts and the heterogeneity of the students (Kinsella & Pitman, 2012).

This remark suggests that in order to train teachers' design skills (Agrati, 2016, 2017), it is necessary, though not sufficient, to provide models (such as "cognitive artifacts"), which are useful for explaining

processing procedures (e.g. phases: timing, outcomes, instructions, assessing, mediation – see Table 1) and, in terms of effective professionalisation, above all, for encouraging the exchange of knowledge and experiences within a learning community in a real "ecosystem of learning".

Professional courses on *design*: The European Design case

Accepting the "challenge" posed by Law No. 107/2015 and PNF/2016 (National Plan of Teacher Training), and in accordance with the international guidelines that underlined the need for an accompaniment to the professionalisation, didactic and methodological innovation and realisation of network projects between schools, families and territories, the University of Bari set up, under the coordination of L. Perla, the DidaSco[3] project "Services for school teaching and the professional development of teachers" (Perla, Vinci & Agrati, 2017) in the academic year 2016/2017, a catalogue of professional training courses within the scope of the Third University Mission[4]. As a result of the skills gained during the training, each DidaSco course requires a final production – a "prototype", i.e. an operating device[5] (a project/piece of work,

3 DidaSco is a multidisciplinary research group made up of researchers from different disciplines (pedagogy, philosophy, mathematics, history, psychology, sociology) and founded for researchers to meet and study the training needs in services emerging from Italian schools.

4 University institutions are responsible for ensuring increasingly managerial activities, as well as research and teaching activities (Deem, Hillyard & Reed, 2007). These activities have a high impact on the territory, as foreseen by the Third University Mission (Serbati, 2014). The concept of the Third Mission – introduced in Italy by ANVUR (National Agency for the Evaluation of the University System and Research) in the VQR 2004–2010 (Evaluation of the Quality of Research) to open "the socio-economic context through the enhancement and transfer of knowledge" – involves giving attention not only to strictly disciplinary and training areas but also to the development of complex skills from pedagogical-didactic, professional, organisational-managerial, managerial and leadership points of view.

5 The concept of "device" has been the object of reflection in many areas of knowledge, primarily in the philosophical (Foucault, 1976; Agamben, 2006; Deleuze, 2007) and pedagogical ones (Massa, 1992; Barone 1997). From a specifically didactic point of view, the concept of "device" is intended as that which makes possible the structuring of the relationship between the world of the student and the world of the teacher in the didactic action (Rossi, 2009, 2011; Rossi & Toppano, 2009), as a "network of knowledge mediation" (Berten, 1999), as "what tends to set up an environment in which the relational network between teachers, students and knowledge is configured dynamically and becomes a system" (Parmigiani, 2017), as the "internal organisation of didactic elements" (Damiano, 2006), as a situation designed by the teacher so that students can learn, carry out a task, realize a project, and solve a problem (Magnoler, 2009), and as a cultural, conceptual and normative apparatus/support to guide the dynamics

an intervention program, a Competence Unit, etc.), developed during the course, which can be concretely experimented with in class in order to "test" what has been learnt.

The DidaSco course "European Design in the school of autonomy" (coordinated by L. Perla and conducted by V. Vinci as expert trainer) is part of the international (Schleicher, 2016; Burns & Köster, 2016; Eurydice, 2018a, 2018b; EC, 2018; Pieters, Voogt & Preja Roblin, 2019) and national (Perla, 2016; Perla & Tempesta, 2016; Perla & Martini, 2019) professional development trend aimed at system skills – indicated by the PNF/2016 as a "priority" – and didactic and organisational autonomy, which includes some key contents, such as European Design. The course was structured according to the organisational and didactic model common to DidaSco courses (Perla, Vinci & Agrati, 2017) but customised in content (Annex 1; see also Vinci, 2019). It was conducted in two editions: in 2018 at the "Davanzati-Mastromatteo" School in Palo del Colle (Bari), involving 30 teachers, and in 2019 at the Technical Institute "Vitale Giordano" in Bitonto (Bari), involving 14 teachers.

The choice of the course by the schools was motivated by multiple reasons:

1. The first reason is linked to the analysis of the teachers' training needs, expressed and manifested both in their first contact with the university and during the first training meeting. Teachers are increasingly called upon to strengthen their entrepreneurial ability to use/identify human, financial and technological resources to improve the quality of their teaching, including through external funding sources; to work collaboratively with other teachers and with other professional figures, both inside and outside the school, and therefore to encourage territorial partnerships and participatory planning; to enrich the educational offer with projects based on interdisciplinary knowledge and the development of cross-curricular skills, giving complete fulfillment to the opportunities offered by the real implementation of autonomy and organisational flexibility; and to experiment and implement innovative and laboratory teaching

of knowledge acquisition (Calvani, 2007). As a "bridge between action and its representation", according to Rossi (2011), the device promotes the documentation of the didactic act and the generation of the teachers' pedagogical knowledge.

and management-organisational models with different temporal-spatial modulations and different classroom management;

2. The second reason is the connection with the national and international[6] professional development trends: the system skills – indicated by the PNF/2016 as a priority of the professional development system – include didactic and organisational autonomy, which includes some key contents[7], including European Design.

Through a *simulated situation*[8] (Samurçay & Rogalski, 1998; Samurçay, 2005; Vidal-Gomel, 2005; Fauquet, 2006; Fauquet-Alekhine

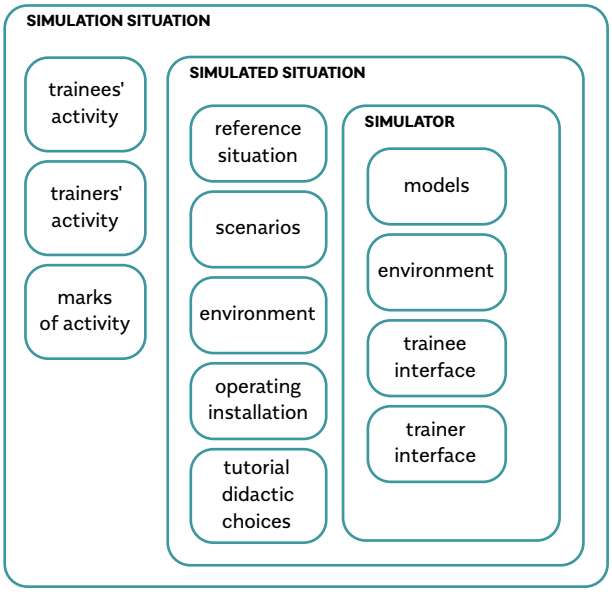
6 The internationalisation of education systems and the mobility and recognition of training credits and qualifications are significant issues in European policy documents. For example, the *Structural Indicators for Monitoring Education and Training Systems in Europe* report (Eurydice, 2018b) highlights, among the European political educational priorities, the improvement of learning mobility. One of the main obstacles to mobility in the field of education, stresses the report, is a lack of sufficient funding, but Europe remedies this with the mobility grants of the Erasmus+ Program. European policy invites Member States to examine, in parallel with direct financial aid, their internal support (Council Recommendation of 28 June 2011 on "Youth on the move" – promoting the learning mobility of young people, OJ C199, 7.7.2011, C199/4) and to recognize, in a coherent way, the learning outcomes acquired through credits (European Credit Transfer and Accumulation System – ECTS) and higher education qualifications.

7 Designing in the context of autonomy; European design; organisational flexibility; modular teaching; classroom management; participatory design of learning environments; management and enhancement of the share of autonomy of the Institute curriculum; use of autonomy staff: models and simulations; team work; school time; enhanced staff and functional staff; team teaching; peer review and tutoring; role of middle management in the school; work in the professional community; planning of the training offer plan; working in networks and areas (PNF/2016, p. 27).

8 The *"simulator" artifact* is represented by a documentary design format, partly developed by the DidaSco group on the basis of theoretical knowledge and models on the subject (Capperucci, 2008; Mastrofini, 2017; Sarracino, 2017) and shared international design experiences with schools, partly co-built with teachers during training meetings, i.e. during the simulation situation. The artifact was built while thinking about the different voices that could somehow guide the teachers in moving from the *abstract creative idea* to the *concrete project* (a "project type", not designed for a specific funding announcement) and which are sometimes completely ignored by the teachers, often also in the planning phase. The items used for the European DidaSco design format are: *Registry section* (name of the project, school data/network of the proposing school and its components, curriculum and skills); *Project section* (project objectives, identification of the stakeholders and requirements that meet the needs and expectations of the stakeholders, deliverables (results) of the project, milestones, activity timetable, intermediate results or main deadlines to be respected, hypotheses on the methods of implementation (WP), resources involved (work team), times, financial plan, constraints, risks, dependence on other projects/initiatives, success criteria, manager and work team, monitoring and evaluation, dissemination, follow up, feasibility, sustainability, innovation); and *Attachments section*.

& Labrucherie, 2012; Vidal-Gomel & Fauquet-Alekhine, 2016), the teachers developed "prototypes" of European projects – a total of five projects, focused on the connection between school and territory, were drawn up. Each project team was composed of teachers differentiated by school level. The design of teaching devices requires four fundamental steps, as Rossi (2009) and Pastré and Samurçay (2004) have suggested: "identification of the action field and analysis of the relative tasks and activities; modeling of the training situation and simulation, carried out by the designer to hypothesise how the recipients will interpret the intrinsic device network; analysis of the skills gained by the subjects in their experience and which are mobilised in the resolution of the task presented in the training situation; analysis of the evolution of knowledge and skills that manifests itself in the path" (Rossi, 2009, p. 214).

Figure 2. Three levels of analysis of simulations adapted from Samurçay



Source: Vidal-Gomel, 2005; Vidal-Gomel & Fauquet-Alekhine, 2016.

In the "simulation situation" (Vidal-Gomel & Fauquet-Alekhine, 2016, p. 3), the **debriefing** plays a key role, which is designed not only at the end of the entire training course, but is used at the end of each meeting/

laboratory session, and therefore as a feedback tool, source of constant monitoring and **scaffold** in the project simulation. In the specific simulation situation, some actions of the trainer carried out during the debriefing phase led to a partial re-elaboration of the design device: the description of some new tools considered by the trainee teacher to be of particular interest and usefulness, such as those aimed at graphic representations and summaries of the most relevant design information (the work breakdown structure, the responsibility matrix, the Gantt diagram, the risk plan, the WP plan, the SWOT analysis matrix); practical--operational advice and information on possible calls for scholastic interest (Erasmus+, Europe for Citizens, FSE-FESR Programming 2014–2020, Horizon, etc.). In the simulation situation, moreover, some operations were carried out to transform the real situation (to elaborate a European project) in order to facilitate the acquisition of skills by the trainee teachers (Samurçay & Rogalski, 1998): division of tasks and under-tasks between group members, separation of variables (in particular those relating to the calculation of economic resources and therefore the formalisation of the budget, initially separated from the other dimensions planned – due to their technical nature – and subsequently reintegrated) and to focus the relationships between variables (in the matrix of responsibilities, which made it possible to visualise "who does what, when and with what resources", that is, linking human resources, actions, times, and costs). Precise tutoring actions were adopted to support the teachers and to transpose project management knowledge at the school level, as well as by the adaptation and customisation of some standard items to the training needs of a specific school.

Survey on teachers' representations of *design*

In 2018–2019, an initial investigation was conducted by the *DidaSco Research Group* with the aim of learning the representations of *design* given by the teachers participating in the professional training course "European Design in the school of autonomy" (Vinci, 2019). The study aimed at understanding and fostering the point of view of teachers about teacher's design skills, acknowledging professional knowledge as implicit and pre-reflexive; it referred to teachers' thinking and teachers' professional knowledge studies (Shulman, 1986, 2004; Clark & Peterson, 1986; Day, Pope & Denicolo, 1990) and focused on the embedded

pre-reflexive knowledge of teachers (Stadler & Frensch, 1998; Calderhead & Robson, 1991; Cabaroglu & Roberts, 2000; Gommers & Hermans, 2003). At the end of the course, the 14 teachers involved answered an ad hoc online questionnaire (Table 2).

Table 2. Characteristics of the involved teachers

GENDER	AGE (MEAN)	SCHOOL GRADE	QUALIFICATION
11 females	50.55 years	Primary school (2)	Master's degree or post-graduate degree (6)
3 males	47.33 years	Middle school (6)	Bachelor's degree (3)
		Secondary school (6)	High school diploma (1)

All 14 teachers (3 males, 11 females) were also referents for specific areas of managing school institutions, such as legality, orientation, digital technology, three-year plan of training offers[9], evaluations, and teacher training. The questionnaire was structured in seven open-ended questions:

1. How would you define the word "design"?
2. Write three words that you associate with "design".
3. Reflecting on the simulation experience of drawing up a project, what were the greatest difficulties encountered?
4. Reflecting on the simulation experience of drawing up a project, what kind of relational dynamics were generated in the group?
5. Do you think the simulation experience was useful? If so, in what way?
6. What skills do you think you have acquired since the course?
7. In relation to design skills, on what do you think you need further training?

9 The *three-year plan of training offer* (PTOF) complies with the provisions of Art. 1 of Italian Law No. 107 of 13 July 2015. The PTOF is the basic constitutive document of the cultural and organisational identity of the educational institutes which presents the curricular, extracurricular, and didactic and organisation plans that schools adopt thanks to their autonomy. It is normally developed and updated every year, based on the social, cultural, educational and demographic characteristics of the context. In order to allow a comparative evaluation by students and families, and to ensure full transparency and promotion, the PTOF is published on the school's web portal.

The answers were analysed inductively through the emerging categories method (Q.1) and textual analysis software (Q.2). The questionnaire data was also used to monitor the impact of the professional training course on knowledge and to deduce possible descriptors of the quality of knowledge/design skills. About half of the respondent teachers defined the word "design" (see Q.1) as a transformative process, e.g. "Designing means starting from the analysis of the existing to project towards the future, towards the identification of hypothetical paths of the transformation of reality"; "Starting from the existing and identifying paths of change of reality". Some teachers underline, on the other hand, the importance of the creative dimension: "Creative activity that must be translated into activity"; "Elaboration of a creative idea"; "Breeding ground of ideas". Others define it as planning and structuring a work path: "Timely planning of a work path"; "To give shape and structure to an idea so that it can be implemented".

Regarding associations with the word "design" (Q.2), the analysis of the occurrences – as shown in Table 3 and the word-cloud (Figure 3) – – highlights the link with the concept of planning (i.e. of activities) and ideation.

Table 3. Word list: design

WORD	WEIGHT
Plan/planning	4
Idea/ideation	4
Contextualized	2
Feasibility	2
Intentional	2
Organisation	2
Elaborate/elaboration	2
Evaluate/evaluation	2

Figure 3. Word-cloud: design

The difficulties encountered in the simulation experience of design (Q.3) were of different types: from temporal – e.g. little time available ("having little time, dealing with the complexity of the concrete situation"), timing ("to assume a realistic and precise time schedule") – to financial issues ("implement a rigorous financial plan"); from

the relationship with stakeholders ("identify the needs of stakeholders") to the reporting for the territory ("explain the impact of the project on the territory"); from the drafting of a risk plan ("foreseeing risks and criticalities"; "write a risk plan") to the generalisation of the effects ("broaden the project horizons to give it a wider scope"); and from the lack of explanatory examples ("not having a concrete example of a project call to refer to") to the choice of useful measures ("designing really useful measures").

The relationship dynamics generated in the group during the simulation experience of drawing up a project (Q.4) were very positive, based on comparisons, the negotiation of solutions, the sharing of proposals, teamwork, and interdependence. The importance of "vertical" confrontations with colleagues from different grades of schools was stressed:

[It] *allowed me to deal with different realities from the one in which I work. This has broadened my horizons and allowed me to work vertically, enriching my knowledge thanks to the experiences of those who have already carried out projects in their school.*

Twelve teachers considered the simulation experience useful (Q.5) because it offered the possibility of collaborating in a team, meeting colleagues from different schools and different school grades, getting into concrete situations, reflecting on the complexity of developing a project and on the risks that may arise in the project implementation phase, thinking of strategies to solve problems, and understanding that "even the brightest ideas, in comparison with the group, are perfected".

The last two questions (Q.6, Q.7) were very useful for understanding outcomes and needs from the teachers' point of view and redesigning the next professional training courses.

Table 4. Outcomes and needs of teachers

OUTCOMES	NEEDS
→ Working in a team, collaborating in a team, communicating and relating to people from different backgrounds; → Organisational and managerial skills, economic management; → Monitoring and research skills from project partners.	→ Knowledge – information on project calls (Erasmus+); information on current legislation; analysis of existing and well-structured projects (concrete examples), listening to expert witnesses on the difficulties encountered, knowledge of previous experiences; → Procedures – drafting of the budget and reporting (project reporting/documentation); → Processes – methodology and project monitoring criteria, in the short, medium and long term; identification of the strengths/weaknesses of the project; risk management.

Summarising the data analysis, teachers define the word "design" as a transformative process, underlining the importance of several dimensions, like creativity, planning, structure, context, feasibility, intentionality, organisation, elaboration, and evaluation. Therefore, the results of the study allowed the most significant meanings of such a complex theme to be deepened, such as the enhancement of learning design, with the group of teachers involved in the training. This theme can be translated into effective practices in the simulation experience of design. As we have seen, the relationship dynamics generated in the group during the simulation experience of drawing up a project were very positive, based on comparisons, the negotiation of solutions, the sharing of proposals, teamwork, and interdependence. Teachers considered the simulation experience to be useful because it offered them the possibility of collaborating with colleagues from different schools and different school grades, getting into concrete situations, reflecting on the complexity of developing a project, and thinking of strategies to solve problems. The outcomes, in fact, indicate managerial, communication, economic, evaluation and research skills: the outgoing professional profile is certainly rich, complex, and flexible, as required by the most recent international policies. Many difficulties were encountered in the simulation experience of design, among which were the short time available, the lack of explanatory examples, and the drafting of plans that involve consolidated concrete experiences (e.g. risk plan, financial plan). Training needs concern both the field of knowledge and that of procedures and processes

(see Table 4). These responses suggest a need to implement training courses in which experiences, simulations and procedural knowledge are enhanced. Finally, the experiences mentioned revealed a different mastery in the elaboration of a European project by the teachers: all of this shows the heterogeneity of the skills of the trainee teachers and a general difficulty in concretely elaborating, from a technical and operational perspective, the creative idea behind the project (which remains very generic).

Findings and conclusion

The theoretical framework and the findings of the investigation make it possible to advance a series of reflections regarding the typical procedure for training in design skills. This procedure could be inspired by the "cyclical process", admit the training modality of the **simulated experience** and, last but not least, be open to a **learning ecosystem**.

There should be a procedure for training the very complex design skill of teachers (Fredrick & Sonneveld, 2009; Roozenburg & Eekels, 1995), assuming a sort of scheme with "stable" components – such as the choice of **learning outcomes** and **instructions**, as well as **assessment** methods (see Table 1; see also Branson et al., 1975; Dick et al., 2005), although the latter are sometimes inverted (Wiggins & McTighe, 1998), or specific components, such as **timing** and **mediation** (Dick et al., 2005; Fink, 2003). This scheme could be guaranteed on a qualitative level if were carried out in a "cyclical" way (see Figure 1) through the passage from *Analysing the problem*, to *Formulating* **a design proposal** (the actual "design"), to the *Testing of the design*, and returning to *Analysing the problem*.

As highlighted by the investigation on simulation experience, although teachers are sure that, from a theoretical point of view, the **design** is, in other words, a "plan" (Q.1), they nevertheless feel the difficulty of translating these hypotheses in concrete situations, both temporally and materially (Q.3). It seems that teachers have the structure but lack concrete references to implement, above all, the transition from *Formulating a design proposal* to *Realising the design*; also, for this reason, they firmly asked for concrete design examples and witnesses that can describe the experience.

Other difficulties have been expressed regarding the risk assessment and the generalisation of the effects (Q.3), aspects that – compared

to the "cyclical process" – are associated with *Evaluating and testing the design* and, in particular, the passage from this to *Analysing the problem*.

These aspects allow us to argue that, although we are in possession of explanatory models of the entire quality process – as illustrated in Figure 1 – we should direct our investigations to better describe the passage from one moment to another and how this could be favored.

As described in the previous paragraphs, the teaching strategy used in the course on European planning was the simulation experience, realized, in particular, through debriefing and structuring the groups for tasks and sub-tasks. Re-reading the survey responses, it is as if the operational difficulties reported in Q.3 (especially the lack of additional examples) were partially recovered thanks to the presence of colleagues, with whom the teachers had the opportunity to "broaden their horizons", to discuss solutions, to externalize their fields of experience (including referring to unknown school degrees, different from one's own), and even to critically reflect on the effective usefulness of certain procedures adopted (Q.4, Q.5).

Recourse to the working group, as a peer, within the simulation experiences was confirmed to be a positive aspect; it should be taken into consideration when carrying out professional training programs for teachers, as, among other things, is already highlighted in the literature – on support environments within schools and networks for teacher collaboration, the sharing of professional standards and the co--construction of functional artifacts for teaching-learning processes (Seashore, Marks & Kruse, 1996; Toole & Louis, 2002; Thompson, Gregg & Niska, 2004; Stoll et al., 2006; Lisse, Swets, Zeitlinger Stoll & Louis, 2007; Donner, Mandzuk & Clifton, 2008) – and the European document on the *Professional Learning Community* (EC, 2018, p. 55).

The last reflection concerns the emerging *learning ecosystem*. As is known, this refers to the ability, as well as the willingness, to feel part of a much wider learning system, within which teachers could occupy the middle part since it deals with favoring the passages from the center (the policies and choices of schools) to the final "terminals" – i.e. families and students (Hammond, 2010; OECD, 2014).

This awareness clearly emerged in the investigation since teachers highlighted, on the one hand, the difficulties in entering into an adequate relationship with the needs of the *stakeholders* and in reporting

the outcomes for the *territory*, and, on the other, the need to share work experiences in the group that would allow them to extend boundaries and open up to other dimensions such as the "vertical" one, thanks to them sharing with colleagues of other school grades (see Q.3, Q.5).

This could be a sign of a new way of being a teacher that responds to the *new profile of a teacher* that is emerging from international policies (Schleicher, 2018), one who is willing to collaborate with colleagues, interpret the needs of the outside world (stakeholders, families, other entities) and adopt flexible choices and interventions, and who, within this way of being, gives proof of their autonomy and strong professionalism (Schleicher, 2016).

References

- Agamben, G. (2006). *Che cos'è un dispositivo?.* Roma: Nottetempo.
- Agrati, L.S. (2016). La competenza progettuale dell'insegnante. Esplicitazione della componente abduttiva, *Formazione & Insegnamento*, *XIV*(3), 155–164.
- Agrati, L.S. (2017). *La competenza progettuale dell'insegnante. L'analisi dei project work.* In: P. Magnoler, A.M. Notti, L. Perla (eds.), *La professionalità degli insegnanti. La ricerca e le pratiche* (pp. 779–792). Lecce: Pensa Multimedia.
- Barone, P. (1997). *La materialità educativa. L'orizzonte materialista dell'epistemologia pedagogica e la clinica della formazione*. Milano: Unicopli.
- Berten, A. (1999). *Dispositif, médiation, créativité: Petite généalogie*. Paris: CNRS Education.
- Bowen, G.A. (2009). Document Analysis as a Qualitative Research Method, *Qualitative Research Journal*, *9*(2), 27–40.
- Branson, R.K., Rayner, G.T., Cox, J.L., Furman, J.P., King, F.J. and Hannum, W.H. (1975). *Interservice procedures for instructional systems development*. Ft. Monroe: U.S. Army Training and Doctrine Command.
- Britain, S. (2004), *A Review of Learning Design: Concept, Specifications and Tools. A report for the JISC E-learning Pedagogy Programme*.
- Burns, T. and Köster, F. (eds.) (2016). *Governing Education in a Complex World*. Paris: Organisation for Economic Co-operation and Development Publishing.
- Cabaroglu, N. and Roberts, J. (2000). Developments in student teachers' preexisting beliefs during a one-year P.G.C.E. programme, *System*, *28*(3), 387–402.
- Calderhead, J. and Robson, M. (1991). Images of Teaching: Student Teachers' Early Conceptions of Classroom Practice, *Teaching and Teacher Education*, *7*(1), 1–8.

- Calvani, A. (2007). *Fondamenti di didattica. Teoria e prassi dei dispositivi formative*. Roma: Carocci.
- Capperucci, D. (2008). *Dalla programmazione educativa e didattica alla progettazione curricolare. Modelli teorici e proposte operative per la scuola delle competenze*. Milano: FrancoAngeli.
- Clark, C.M. and Peterson, P.L. (1986). Teachers' Thought Process, In: M.C. Wittrock (ed.), *Handbook of Research on Teaching*. New York: MacMillan.
- Council Recommendation of 28 June 2011 on "Youth on the move" – promoting the learning mobility of young people, OJ C199, 7.7.2011, C199/4.
- Damiano, E. (2006), *La Nuova Alleanza. Temi problemi e prospettive della nuova ricerca didattica*, Brescia: La Scuola.
- Day, C., Pope, M. and Denicolo, P. (1990). *Insights into Teachers'Thinking and Practice*. London: Palmer Press.
- Deem, R., Hillyard, S. and Reed, M. (2007). *Knowledge, Higher Education, and the New Managerialism. The Changing Management of UK Universities*. Oxford: Oxford University Press.
- Deleuze, G. (2007). *Che cos'è un dispositivo?*. Napoli: Cronopio.
- Dick, W., Carey, L. and Carey, J.O. (2005). *The systematic design of instruction*. Boston: Allyn and Bacon.
- Donner, A., Mandzuk, D. and Clifton, R.A. (2008). Stages of Collaboration and the Realities of Professional Learning Communities, *Teaching and Teacher Education*, *24*, 564–574.
- European Commission (2011). *Entrepreneurship Education: Enabling Teachers as a Critical Success Factor. A report on Teacher Education and Training to prepare teachers for the challenge of entrepreneurship education*. Luxembourg: European Commission, DG Enterprise and Industry.
- European Commission (2013). *Supporting teacher competence development*, http://ec.europa.eu/ education/policy/school/doc/teachercomp_en.pdf.
- European Commission (2018). *Boosting teacher quality: pathways to effective policies*. Luxembourg: European Commission.
- Eurydice (2018a). *Teaching Careers in Europe: Access, Progression and Support*. Bruxelles: European Commission.
- Eurydice (2018b). *Structural Indicators for Monitoring Education and Training Systems in Europe*. Bruxelles: European Commission.
- Fauquet-Alekhine, Ph. and Labrucherie, M. (2012). Simulation training debriefing as a work activity analysis tool: the case of nuclear reactor pilots and civil aircraft pilots. In: Ph. Fauquet-Alekhine (ed.), *Socio-organisational factors for safe nuclear operation* (pp. 79–83). Montagret: Larsen Science.

- Fauquet, Ph. (2006). Confrontation croisée ou analyse collective sur la base de restitutions d'entretiens individuels: Deux approches pour l'analyse évènementielle, *Revue électronique @ctivités*, *3*(2), 2–14.
- Fink, L. (2003). *Creating Significant Learning Experiences for College Classrooms: An Integrated Approach to Designing College Courses*. San Francisco: Jossey-Bass.
- Foucault, M. (1976). *La volontà di sapere*. Milano: Feltrinelli.
- Frederik, J.E. and Sonneveld, W. (2007). Mysteries for sale. In: M.J. de Vries, R. Custer, J. Dakers, G.E. Martin (eds.), *Analyzing best practices in technology education* (pp. 83–92). Rotterdam/Taipei: Sense Publishers.
- Frederik, I. and Sonneveld W. (2009). Teaching design skill: Technology in senior secondary education. In: A. Bekker, I. Mottier, M.J. de Vries (eds.), *Proceedings PATT-22 Conference: Strengthening the position of technology education in the curriculum* (pp. 218–225). Delft: International Technology and Engineering Educators Association.
- Freiberg, H.J. (2002). Essential skills for new teachers, *Educational Leadership*, 59(6), 56–60.
- Gommers, L. and Hermans, C. (2003). Beliefs in action: Teachers' identity influences school's identity, *International Journal of Education & Religion*, *4*(2), 186–198.
- Hammond, K.R. (2010). Intuition, no!... Quasirationality, yes!, *Psychological Inquiry*, 21, 327–337.
- Hornby, A.S. (ed.) (2010). *Oxford Advanced Learner's Dictionary of Current English* (8th ed.), Oxford: Oxford University Press.
- Kinsella, A.E and Pitman, A. (eds.) (2012). *Phronesis as professional knowledge – practical wisdom and the professions*. Rotterdam: Sense Publishers.
- Koper, R. (2006). Current Research in Learning Design, *Educational Technology & Society*, *9*(1), 13–22.
- Laurillard, D. (2012). *Teaching as a design science. Building pedagogical patterns for learning and technology*. New York–London: Routledge.
- Law 13/07/2015, No. 107. European Commission, 2013.
- Lisse, N.L., Swets, L., Zeitlinger Stoll, L. and Louis, K.S. (2007). *Professional Learning Communities: Elaborating New Approaches.* In: L. Stoll, K.S. Louis (eds.), *Professional Learning Communities: Divergence, Depth, and Dilemmas* (pp. 1–14). Berkshire: Open University Press.
- Loughran, J.J. (2006). *Developing a pedagogy of teacher education: Understanding teaching and learning about teaching*. London: Routledge.

→ Magnoler, P. (2009). *I dispositivi didattici e l'on line.* In: P.G. Rossi, *Tecnologia e costruzione di mondi* (pp. 206–254). Roma: Armando.
→ Mantyla, K. (1999), *Interactive distance learning exercises that really work!* Alexandria: American Society for Training and Development.
→ Massa, R. (ed.) (1992). *La clinica della formazione. Un'esperienza di ricerca*. Milano: Unicopli.
→ Mastrofini, E. (2017). *Guida alle conoscenze di gestione progetti. Griglia di riferimento per i responsabili di progetto e per gli altri ruoli professionali di project management*. Milano: FrancoAngeli.
→ Nikolaeva, S. (2012). Improving initial teacher education by using the project-based approach, *Educational Research e-Journal*, *1*(1), 51–60.
→ OECD (2009). *TALIS – The OECD Teaching and Learning International*.
→ OECD (2014). *Education at a Glance 2014: OECD Indicators*.
→ Parmigiani, F. (2017). Dispositivi, ambienti, artefatti. In: P.C. Rivoltella, P.G. Rossi, *L'agire didattico. Manuale per l'insegnante* (pp. 231–246). Brescia: La Scuola-Morcelliana.
→ Pastré, P. and Samurçay, R. (2004). *Researches en didactique professionnelle*. Toulouse: Octarès.
→ Perla, L. (2015). Lo sviluppo professionale dell'insegnante. Ipotesi per una modellistica in fiery, *Mizar*, *1*, 9–21.
→ Perla, L. and Martini, B. (eds.) (2019). *Professione insegnante. Idee e modelli di formazione*. Milano: FrancoAngeli.
→ Perla, L. and Tempesta M. (eds.) (2016). *Teacher Education in Puglia. Università e Scuola per lo sviluppo della professionalità docente*. Lecce: Pensa Multimedia.
→ Perla, L., Vinci, V. and Agrati, L. (2017). The DidaSco Project: a training program for the teachers' professional development. In: J. Mena, A. García Valcarcel Muñoz Repiso, F.J. García Peñalvo, M. Martín del Pozo (eds.), *Search and research: teacher education for contemporary contexts* (pp. 921–930). Salamanca: Ediciones Universidad de Salamanca.
→ Pieters, J., Voogt, J. and Preja Roblin, N. (2019). *Collaborative Curriculum Design for Sustainable Innovation and Teacher Learning*. Cham: Springer.
→ Reiser, R.A. and Dempsey, J.V. (2012). *Trends and issues in instructional design and technology*. Boston: Pearson.
→ Roozenburg, M. and Eekels, J. (1995). *Product Design: Fundamentals and Methods*. New York: Wiley.
→ Rossi, P.G. (2009). *Tecnologia e costruzione di mondi. Post-costruttivismo, linguaggi e ambienti di apprendimento*. Roma: Armando.

→ Rossi, P.G. (2011). *Didattica enattiva. Complessità, teorie dell'azione, professionalità docente*. Milano: FrancoAngeli.
→ Rossi, P.G. and Toppano, E. (2009). *Progettare nella società della conoscenza*. Roma: Carocci.
→ Samurçay, R. (2005). Concevoir des situations simulées pour la formation professionnelle: Une approche didactique. In: P. Pastré (ed.), *Apprendre par la simulation. De l'analyse du travail aux apprentissages professionnels* (pp. 221–239). Toulouse: Octarès.
→ Samurçay, R. and Rogalski, J. (1998). Exploitation didactique des situations de simulation, *Le Travail Humain*, *61*(4), 333–339.
→ Sarracino, F. (2017). La progettazione didattica come risposta alla complessità della classe. In: P.C. Rivoltella, P.G. Rossi (eds.), *L'agire didattico. Manuale per l'insegnante* (pp. 209–230). Brescia: La Scuola-Morcelliana.
→ Schleicher, A. (2016). *Teaching excellence through Professional Learning and Policy Reform: Lessons from Around the World, International Summit on the Teaching Profession*. Paris: Organisation for Economic Cooperation and Development Publishing.
→ Schleicher, A. (2018). *Valuing our Teachers and Raising their Status: How Communities Can Help*. Paris: OECD Publishing.
→ Seashore, K.R., Marks, H.M. and Kruse, S. (1996). Teachers' Professional Community in Restructuring Schools, *American Educational Research Journal*, *33*(4), 757–798.
→ Serbati, A. (2014). *La terza missione dell'università. Riconoscere apprendimenti esperienziali e certificare competenze degli adulti*. Lecce: PensaMultimedia.
→ Shulman, L.S. (1986). Those who understand: knowledge growth in teaching, *Educational Researcher*, *15*(2), 4–14.
→ Shulman, L.S. (2004). *The Wisdom of Practice: Essays on Teaching, Learning, and Learning to Teach*. San Francisco: Jossey-Bass.
→ Skinner, B.F. (1954). The Science of Learning and the Art of Teaching, *Harvard Educational Review*, *24*(2), 86–97.
→ Snelbecker, G.E. (1987). Instructional design skills for classroom teachers, *Journal of Instructional Development*, *10*(33), 33–40.
→ Stadler, M.A. and Frensch, P.A. (eds.) (1998). *Handbook of implicit learning*. London: Sage Publications.
→ Stoll, L., Bolam, R., McMahon, A., Wallace, M. and Thomas, S. (2006). Professional Learning Communities: A Review of the Literature, *Journal of Educational Change*, *7*(4), 221–258.
→ Stronge, J.H. (2018). *Qualities of effective teachers*. Alexandria: ASCD.

→ Taba, H. (1962). *Curriculum. Development, Theory and Practice*. New York: Harcourt Brace & World.
→ Thompson, S.C., Gregg, L. and Niska, J.M. (2004). Professional Learning Communities, Leadership, and Student Learning, *Research in Middle Level Education Online*, *28*, 1–15.
→ Toole, J. and Louis, K.S. (2002). *The Role of Professional Learning Communities in International Education*. In: K. Leithwood, P. Hallinger, *The Second International Handbook of Educational Leadership* (pp. 245–279). Dordrecht: Kluwer.
→ Vidal-Gomel, C. (2005). Une approche prélable à l'analyse de l'activité et des competences, Éducation Permanente, *165*, 47–68.
→ Vidal-Gomel, C. and Fauquet-Alekhine, P. (2016). *Reflections and Theoretical Contributions Regarding Trainers' Practice and Simulation*. In: P. Fauquet-Alekhine, N. Pehuet (eds.), *Simulation Training: Fundamentals and Applications* (pp. 1–29). London: Springer.
→ Vinci, V. (2019), *Le competenze progettuali degli insegnanti nella scuola dell'autonomia: analisi dei prototipi di un corso di sviluppo professionale DidaSco*. In: L. Perla, B. Martini, *Professione insegnante. Idee e modelli di formazione* (pp. 178–203). Milano: FrancoAngeli.
→ Wiggins, G. and McTighe, J. (1998). *Understanding by design*. Alexandria: ASCD.
→ Wiggins, G. and McTighe, J. (2008). Put Understanding First, *Educational Leadership*, *65*(8), 35–41.

Annex

PRIORITY (CFR. PNF)	SYSTEM EXPERTISE EDUCATIONAL AND ORGANISATIONAL AUTONOMY
TITLE	**European Design in the school of autonomy**
PURPOSE	Ensure that the *European Design* become a established practice within the autonomy of the school, developing teachers in methodological construction of design processes to get out the schools from self-reference and build up networks of schools and territorial authorities.
GOALS	→ Provide appropriate tools to deal with the extremely competitive market, i.e. the "Fundraising" in the field of European Design → Develop the teachers in the abilities of design, implement and manage a European project → Stimulate the practical application and implementation of the knowledge acquired during the course
PROGRAMME	**Activities in presence (8 hours)** → **Starting a European project** Overview of European funding programmes and knowledge of the Participant Portal of the European Commission How to choose call and topic How to build strategic partnerships Analyse an application form Team building Case studies: presentation of approved European projects → **Building a European project: defining the steps leading to the drawing up an application for eligible and quality funding** Construction of the partnership network and how to connect it with the services and the territory Initial survey, analysis of the needs of the context in which the intervention is inserted and connection with other projects Work methodology and schedule of activities: objectives, phases, activities, methods, tools, times, resources Building a financial budget Monitoring and evaluation tools of the project idea: construction of a Quality assurance plan Dissemination: methods and tools for the dissemination of results Follow up and project development proposals Feasibility, sustainability and innovation of a design idea From the proposal to the financing: the administrative management of the project Management of co-financing between the partners and the lead entity **Collaborative / network work * (8 hours)** The teachers, divided into groups, will participate in laboratory activities in which they will be invited to analyse funding programmes, to identify an application form and to define the actions for the preparation of a hypothetical application for funding.

	Research in the classroom* (Prototype) / Documentation* (9 hours) Development/implementation of a prototype, that is to say a final operating device, tangible outcome of the skills acquired during the training, to be tested in teaching practice at school: simulation of the design of a European project within a working team. **Self-study (25 hours)** * Training activities with a high experimental and practical content (D.M. 509 / 1999)	
LOCATION	For.Psi.Com. Department University of Bari / Schools	
PERIOD	School years 2016/2017 – 2017/2018 – 2018/2019	
DURATION IN HOURS	**50 hours**	
RECIPIENTS	**HEAD TEACHERS**	**X**
	TEACHERS	**X**
	TEACHERS OF PRIMARY SCHOOL	**X**
	SECONDARY SCHOOL TEACHERS FIRST GRADE	**X**
	SECONDARY SCHOOL TEACHERS SECOND GRADE	**X**
	CANDIDATES TO TEACHING	**X**
METHODOLOGIES	The didactic model of reference previews activities in presence as training modality in which web based learning and blended learning are integrated. The trainee will have at his disposal all the didactic tools developed by the teachers of the course: teaching material specially crafted (lecture notes, documents, glossary, web references).	
	CLASSROOM – FRONTAL LESSONS	**X**
	CLASSROOM – GROUP WORK	**X**
	WORKSHOPS	**X**
	E-LEARNING	**X**
	WEBINAR	
	BLENDED	**X**
ORGANISATION	The course will be divided into: → activities in presence, to offer a theoretical frame of reference and provide insights for personal reflection; → collaborative work / networked to initiate processes for the construction of competence assessment devices from the theoretical inputs and the contribution of the comparison with the group (training activities with a high experimental/practical content); → individual study / experimentation in teaching practice; → e-learning with dedicated moodle platform.	

TYPE OF FINAL TESTING	There are two types of tests, using multiple-response tests: → final verification (assessment of knowledge/ skills acquired); → Customer Satisfaction (assessment of course approval level).
TYPE OF DOCUMENTA-TION / REPORTING	Return of results of research carried out in the class/es.
SKILLS MAPPING	→ "Fundraising" skills: being able to analyse the market for European funding, being able to analyse the needs and motivations which feed the demand for training, being able to identify calls and topics on which to apply for funding; → "Project management" skills: know how to turn a design proposal into a sustainable project in which all stages of project implementation and management are carefully planned; → "Team working, problem solving e management" skills: being able to work as a team, building on the individual knowledge and skills of colleagues, know--how to handle complex situations and any problems or unexpected.
PROJECT TEAM	Course leader: prof. Loredana Perla Trainer: Viviana Vinci
FINAL CERTIFICATE	At the end of the course a certificate of participation corresponding to the CFU (university training credits) will be delivered, issued by the University of Bari, as a qualified subject recognized by the Ministry of Education.

Motivational, Engaged and Reflective Teaching Competences in Quality Teacher Education

DOI: 10.47050/66515314.284–295

Anna Aleksanyan

In the complex of the professional competences of a teacher, such main competences are highlighted as their motivational competences, integration in the learning environment, organisation of engaged learning, reflective and experience-based learning competences, etc. How should these competences be constructed and why are they important to modern education processes, especially teacher education? The answers to these questions can be found in the methodological concepts of Dewey, Bloom et al., Schön, etc.

All these concepts are generated by the modern theory of teaching, which is constructed by hybrid pedagogy. Hybrid pedagogy creates modern approaches in the organisation of learning processes, combined with the above-mentioned theories and modern challenges of e-learning concepts, based on the catalyst framework of the education process. In hybrid pedagogy, a wide range of blended learning activities and e-tivities is worked out, the usage of which makes possible to overcome modern challenges and get the required outcomes in the learning process. It has already been proved that the effectiveness of the application of all the above-mentioned methodological approaches and tools makes possible to motivate and engage learners in the learning process.

Keywords:
engaged learning
hybrid/blended pedagogy
reflective learning
teacher competences

Teachers' Professional Competences in Pre-Service Education at University

In the 20th century, new educational issues were raised related to the increase of students' self-esteem and the acquisition of knowledge by learners themselves. At the end of the 20th and the start of the 21st century, the problem of increasing students' self-esteem required an urgent solution. The rapidly developing information society has faced the challenge of developing a person who can independently orient him/herself in different situations, manage not only him/herself but also the cognitive activity of his/her surroundings, separate the nature of information flows, and select evidence-based information to build effective interactions with the environment for the sake of a more developed society.

In various historical periods, the theory and practice of pedagogy have shown that the key role of education has been given to one of the two sides of the teaching and learning process: (1) pedagogue (teacher, lecturer, and trainer) or (2) learner (student, pupil). The point of view gets much more interesting when the learner or the student is the future teacher, and pre-service teacher education is organized at universities. Teacher education is a comprehensive process in which every element should be taken into consideration.

From this aspect, the scope of the learning process is expanding, and the learning process can no longer be satisfied with the transfer of knowledge and formulation of skills and abilities by multiple repetitions of that knowledge with their simple mindset. Here, the wide scope of the professional competences of a teacher is noticed. In the complex of the professional competences of a teacher, the following main competences are highlighted: general (knowledge in the framework of pedagogy or on certain subjects, research, culture, etc.), social (interaction skills, socialisation skills, etc.), subject-related competences (teaching methodology frameworks, implementation of subject-related research, etc.) and empirical-practical competences (skills and abilities to make possible the outcomes of the teaching subject, practical experience in the field, and practical techniques that help to apply key functions as a teacher, such as forecasting learning outcomes, studying learners' abilities to learn the subject, problem diagnostics and solving, interaction with learners, educational counseling, educating,

development of the learner's personality, facilitating learning, orientation of a student to self-development, etc.).

How these specific competences are shaped and which competences are dominant are determined by **competent approaches** to the education process and by **mechanisms of competent approaches**. The formation of **a competent approach** was initially determined by education innovations. The bases of **competent approaches** are found in the United States and developed European countries, and their scientific foundations are related to the theory of John Dewey. This approach found its practical formulation and application in the 1997 UNESCO report, having come to prominence and entered into action.

Methodological Bases of Competence Development and Hybrid Pedagogy/Blended Teaching and Learning

It is necessary to formulate clear concepts of competences, since they are extremely practical in nature and determine both the effectiveness of education and the formation of future specialists, especially future teachers, since the final result of the entire education system, the quality of education, depends on their work. That is why, when we talk about improving the competence of a teacher, we understand that this is directly proportional to improving the quality of education. On the other hand, the formation of competences is included in the quality education and qualifications of a specialist.

Qualification – "Quality" Competence – Teacher – Educational process – – Result – Quality – Qualification – "Quality" Competence

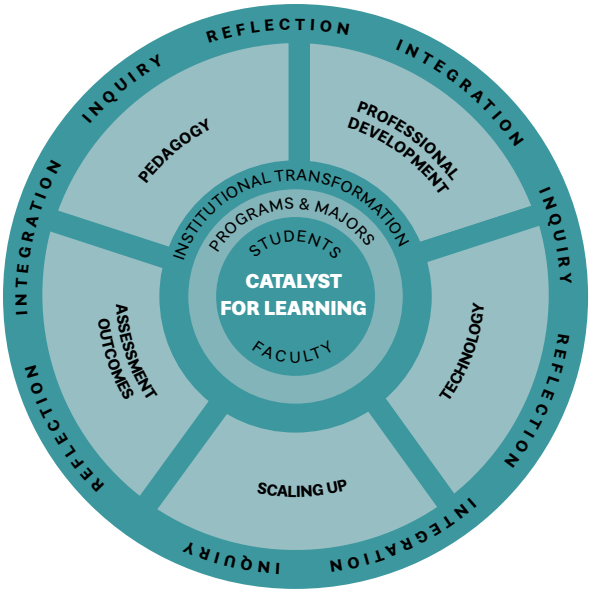
Each **"quality" competence** has the following structure:

1. content (knowledge, abilities, skills);
2. activity (practice, experience);
3. process context (case-related);
4. methodology (methods, techniques);
5. social (interaction, collaboration, socialisation in education with specific groups of learners, colleagues, etc.);
6. self-regulation (self-development, self-analysis, self-criticism, self-evaluation etc.).

The methodological concepts of J. Dewey (1938), B. Bloom et al. (1956), D.A. Schön (2017), J. Bruner (Constructivist Theory), C. Rodgers (2002a, 2002b), etc. have shown the importance of the development of teachers' professional competences.

It is very interesting to discuss the professional competences of a teacher in the framework of the concepts generated by the modern theory of teaching, which is constructed by hybrid pedagogy. Hybrid pedagogy creates modern approaches to the organisation of education processes, combining the above-mentioned theories and modern challenges of e-learning concepts, based on the **catalyst** framework of the education process, and it revises Bloom's taxonomy.

Figure 1. Catalyst framework of the education process



Source: Catalyst for Learning, n.d.

Engaged Learning in Modern Education

In the second half of the 20th century, new problems were raised in the field of education related to increasing the degree of independence of students and the independent acquisition of knowledge by students. Independent learning is when pupils set goals and monitor and evaluate

their own academic development so they can manage their own motivation towards learning. The rapidly developing information society formulates the problem of the development of a personality, solved by educational processes, and that personality can be independently guided in various situations and manage the cognitive activities of not only itself but also those of people around it and its environment, distinguish between the essence of information flows and choose provable information, and create effective interactions with the environment for the sake of a more developed society.

From this point of view, the scope of the problems of the educational process expanded, and the modern educational process could no longer be satisfied only with the transfer of knowledge and the ability to formulate skills in multiple repetitions of this knowledge with simple thinking. Moreover, this function was somewhat taken up by computer hardware.

Within the context of contemporary education, Bloom presents ways of implementing innovative learning in his well-known taxonomy that guides educational specialists. In accordance with Bloom's taxonomy (Bloom et al., 1956) of the goals, stages and organisation of the learning process, the cognitive process includes the following key stages:

1. Knowledge: to remember, distinguish, and find information in the form of facts, rules, formulas, figures, definitions, etc.
2. Comprehension: verbal explanations, generalisation, examples, interpretation.
3. Application: the application of information during a specific operation.
4. Analysis: to identify the relationship between the structural components of information.
5. Synthesis: to obtain information from other sources based on existing knowledge.
6. Evaluation: judgments and choice of criteria, as well as the ability to evaluate various pieces of evidence and realities.

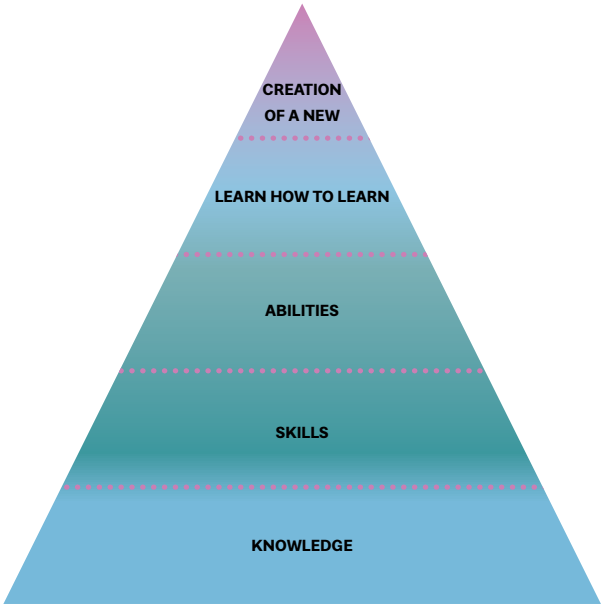
New tasks were supplemented by the already-formed traditional issues of learning. The introduction of innovative forms of learning does not imply a denial of traditional, successful experience. "Innovative" or "creative" learning does not replace traditional learning but

supplements it and makes it more relevant to modern requirements and problems.

Contemporary pedagogical theory and practice are designed to identify ways of maximising a learner's active engagement in the process of learning so that he/she can quickly find a way to learn and learn independently and to form their own opinions and new approaches that will lead to creativity and new knowledge. One of the main reasons for that is that the innovative paradigm of education, on which the modern education system is based, is called "personality-oriented".

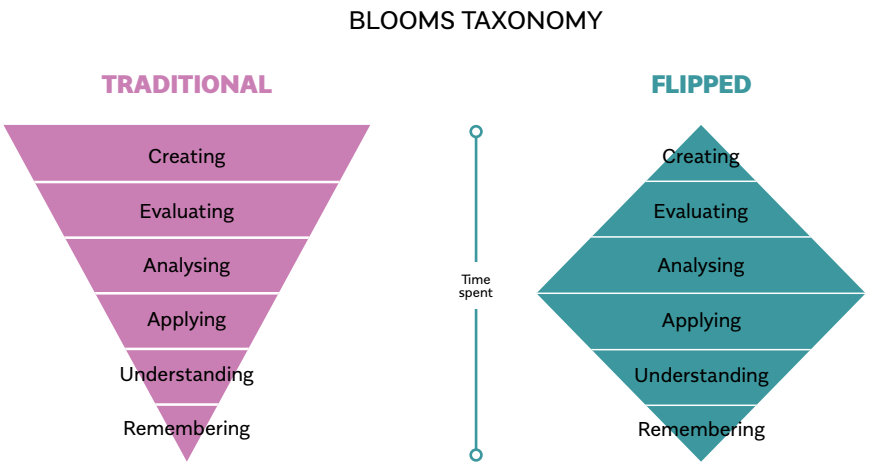
In modern textbooks on pedagogy, three objectives of the traditional learning process are **knowledge** and the formation of **skills** and **abilities**; in addition, there are two more objectives of the modern educational process – to learn how to learn and to create new knowledge.

Figure 2. Current objectives of the learning process



In summary, it is important to note that in the current learning process, a significant role is played by both the teacher and the learner. And only the realisation of the role of each and the scope of the function of this role can provide a training process that meets modern requirements and successful results.

Figure 3. Bloom's taxonomy of hybrid pedagogy



"Hybrid/blended teaching and learning" is consistently being increasingly used to describe how e-learning/e-teaching/self-learning methods are used in a mixed way with traditional classroom methods. This has contributed to the creation of new educational technologies in teaching methods. It also represents a fundamental change in the traditional teaching and learning experience offered by teachers and learners.

Hybrid pedagogy is a broader phenomenon than just the use of "traditional" computers and multimedia methods. A wide range of approaches is also available along with the technological infrastructure. The pedagogical aspects will naturally consider the specific aspects of learning so that learners can work in groups and present their final work. The idea is to make learners more active, improve the quality of instruction, and inspire them to develop new tools and new materials.

Reflective Teaching and Modern Learners in the Framework of the Constructivist Learning Approach

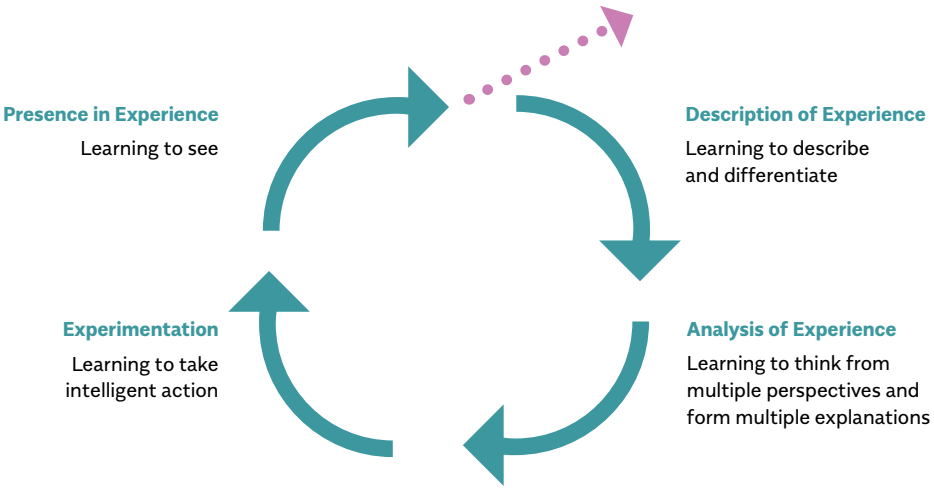
The constructivist learning approach states that the learner takes an active role in constructing their own understanding rather than receiving it from someone who knows. Learners interpret information from the unique personal perspective of their previous experience. Information has to be personalized into knowledge.

Constructivism is "an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner" (Elliott et al., 2000, p. 256).

The methodological bases of the constructivist learning approach belong to the theories of J. Piaget, L. Vigotsky, J. Bruner, M. Montessori, J. Dewey, K. Rogers and others. J. Dewey has played a specific role in this regard by writing his famous book *Experience and Education* (Dewey, 1938).

A constructivist learning approach explains the role played by experience during learning, even during each class and lesson, highlighting reflection as the main learning activity that makes it possible to construct experience. The learning activities in this regard are observation, selection, transformation, processing, interpretation, integration, choice-making, discovery, dialogue, interaction, contextualisation, and reflection. In order to understand the reality of the construction experience and reflection during teaching and learning, we have to look at Rodger's Reflective Cycle (Figure 4).

Figure 4. Rodger's Reflective Cycle



Source: Rodger, 2020, p. 235.

"This confluence of experiences (action) and thought (reflection) combines to create new knowledge... Reflection then is the vehicle for critical analysis, problem-solving, synthesis of opposing ideas,

evaluation, identifying patterns, and creating meaning – in short, many of the higher order thinking skills we strive to foster in our students" (Burns, Dimock & Martinez, 2000).

The role of experience in the formation of professional competences and reflection was emphasized so much that the teacher has been called a "reflective practitioner" (Schön, 2017). In this understanding, the reflective practitioner teacher has to:

1. frame and reframe a problem;
2. test their own interpretations, values and beliefs and modify their own actions as a result;
3. rely less on theory than on the kind of improvisation learnt in practice to meet the challenges of their work;
4. center their professional education on enhancing their self--reflection;
5. reflect-on-action and reflect-in-action.

From this aspect, the teacher has a new role and learning activities have new content. The teacher has to be not only a facilitator but also a reflective practitioner, which is about creating and providing space for learners to:

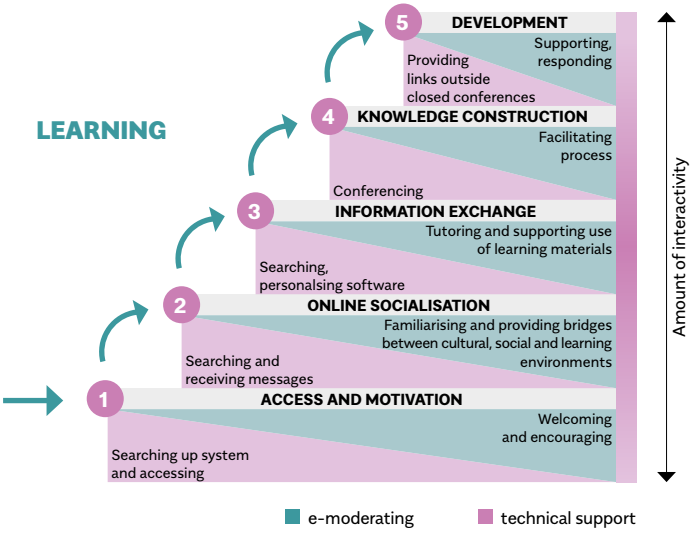
1. try out or create something new,
2. reflect on their own experiences,
3. arrive at new conclusions, and
4. think about how they would apply these conclusions in their work and life.

In this view, learners get more motivation for their self-actualisation and self-development with orientation and help from their teacher.

But a question then arises: How is it possible to define learning activities according to reflective teaching that ensure the engagement and motivation of the learners?

In hybrid pedagogy, a wide range of **activities and e-tivities** are worked out, the use of which makes it possible for the teacher to overcome modern challenges and get the required outcomes in the learning process. The peculiarities of e-tivities are explored by Gilly Salmon, who explains the different specifications of e-learning tools in educational actions (Figure 5).

Figure 5. Interactivity in the learning process



Resources and further explanation: www.gillysalmon.com/five-stage-model.html.

These activities and e-tivities are oriented at the motivation, reflection, and construction of experience, which promotes the creation of new knowledge by students. There are different e-tivities that have been practiced and are well-known as being effective, for example, the e-portfolio. E-tivities have certain elements, which are the definition of their purpose, the presentation of the task, and interaction.

The purposes of e-tivities are to:

1. increase learner engagement,
2. save staff time,
3. make the course productive and fun,
4. easily deploy newer technologies such as social media,
5. easily find purposeful ways of using freely available, topical and/or fun resources within the learning design, and
6. incorporate sound pedagogical principles quickly into teaching and learning.

The teacher as a reflective practitioner became an **e-moderator**. An e-moderator has to interact and intervene in the following ways: be present, support, monitor activity, facilitate, ask questions, summarize, provide orientation, point students into new directions, give feedback, etc.

Conclusion

Modern quality education is not possible without information technologies and online learning tools. Hybrid pedagogy blends teaching and learning activities with e-tivities, engaging them in learning processes aimed at self-reflection and getting experience.

There should be a teaching idea, i.e. an idea that should shape a teaching culture, and the teaching culture of each teacher should in turn create a culture of teaching and learning in an educational institution. It is important here that the scale of teaching is guaranteed to ensure efficiency for the success of the whole. The concept of discipline is very important here, especially from the perspective that each teacher should have an understanding of what scale of education he or she wants to invest in – the success of a particular lesson, a topic, a course, the whole educational programme or the whole institution. This is important in terms of what the teacher identifies him/herself with in terms of short-term goals, mid-term outcomes, or long-term success. That is, does the teacher want to change something in the educational culture of the institution? It does not matter here whether the teacher performs induction or deduction; the most important thing is that he/she sees him/herself in all teaching processes as a reflective practitioner.

And for all these above-mentioned points, in the framework of pre-service teacher education at universities, the following is needed:

1. a pedagogical theory in order to understand all aspects of teaching, especially didactics;
2. technological saturation;
3. professional development – universities must ensure the development of professionals involved in local and international teaching experience aspects;
4. an adequate evaluation of the results, including the opinions of the learners and the results of the students' self-assessment, i.e. whether the learner has also realised what has changed in the structure of his/her professional knowledge and competences.

Speaking about modern innovative teaching technologies over the past decade, it should be borne in mind that the third decade of the 21st century is aimed at making learning oriented on the expectation of active feedback from students, and not on the expectation of their spontaneous participation in each stage of the learning process. Consequently, the most important result is the formation of their experience through reflection and engaged teaching and learning.

References

- Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H. and Krathwohl, D.R. (1956). *Taxonomy of educational objectives: The classification of educational goals*. Handbook I: *Cognitive domain*. New York: David McKay.
- Burns, M., Dimock, M. and Martinez, D. (2000). Action + Reflection = Learning, *TAP Into Learning*, 3(2).
- Catalyst for Learning. http://c2l.mcnrc.org
- Dewey, J. (1938). *Experience and Education*. New York: Simon & Schuster.
- Elliott, S.N, Kratochwill, T.R and Littlefield Cook, J. (2000). *Educational Psychology: Effective teaching, Effective learning*. Boston: McGraw Hill.
- Rodgers, C. (2002). Defining Reflection: Another Look at John Dewey and Reflective Thinking, *Teachers College Record*, *104*(4), 842–866.
- Rodgers, C. (2002). Voices inside schools seeing student learning: Teacher change and the role of reflection, *Harvard Educational Review*, *72*(2), 230–253.
- Salmon, G. (2004). *E-moderating. The Key to Online Teaching and Learning* (3rd ed.). London: Routledge.
- Salmon, G. (2013). *E-tivities: The key to active online learning*. London: Routledge.
- Salmon, G. (n.d.). *The Five Stage Model*. www.gillysalmon.com/five-stage-model.html
- Schön, D.A. (2017). *The reflective practitioner: How professionals think in action*. London: Routledge.

Authors

Laura Sara Agrati
"Giustino Fortunato" University
ORCID iD: 0000-0003-0108-5176
Anna Aleksanyan
Yerevan State University
ORCID iD: 0000-0001-6372-7766
Tania Alonso-Sainz
Autonomous University of Madrid
ORCID iD: 0000-0002-0269-9432
Kinga Białek
School of Education
of the Polish-American Freedom
Foundation University of Warsaw
ORCID iD: 0000-0001-5164-9502
Aliya Bukusheva
Saratov State University
ORCID iD: 0000-0002-2930-1697

Marie Bocquillon
Université de Mons
ORCID iD: 0000-0002-0518-1539

Marc Demeuse
Université de Mons
ORCID iD: 0000-0002-6705-7787
Maria Assunção Flores
University of Minho
ORCID iD: 0000-0002-4698-7483
Nathanaël Friant
Université Libre de Bruxelles
ORCID iD: 0000-0003-2811-714X
Chloé Gravé
Université de Mons
ORCID iD: 0000-0003-3086-8065
Joanna Madalińska-Michalak
University of Warsaw
ORCID iD: 0000-0001-9980-6597
Michał Pachocki
Foundation for the Development
of the Education System
Graduate School for Social Research
(Institute of Philosophy and Sociology
of the Polish Academy of Sciences)
ORCID iD: 0000-0003-1991-1210
Cláudia Manuela da Silva Pinheiro
University of Minho
ORCID iD: 0000-0002-5474-8546
Joanna Pitura

Pedagogical University of Cracow
ORCID iD: 0000-0003-1659-1995
Gisselle Tur Porres
National University of (UNAE), Ecuador
ORCID iD: 0000-0003-1494-0549
Bianca Thoilliez
Autonomous University of Madrid
ORCID iD: 0000-0003-2911-5947
Viviana Vinci
'Mediterranea' University
of Reggio Calabria
ORCID iD: 0000-0002-4091-0098
Sina Westa
Catholic University of Eichstätt-
-Ingolstadt
ORCID iD: 0000-0002-8801-0769
Ildikó Zank
University of Pécs
ORCID iD: 0000-0002-2507-1943
Dorota Zdybel
Jesuit University Ignatianum
ORCID iD: 0000-0003-3322-7570

So far, the Key Concepts Series has included:

Vol. 1: *Teacher Education Policy and Practice – International Perspectives and Inspiration*
Vol. 2: *Teacher Leadership (Przywództwo nauczycieli)*
Vol. 3: *Kompetencje przyszłości*
Vol. 4*: Przestrzenie i miejsca edukacji dorosłych w Polsce*
Vol. 5: *Kształtowanie kompetencji przedsiębiorczych*
Vol. 6: *Education – Relationships – Play. Multifaceted Aspects of the Internet and Child and Youth Online Safety (Edukacja – Relacja – Zabawa. Wieloaspektowość internetu w wymiarze bezpieczeństwa dzieci i młodzieży)*
Vol. 7: *Edukacja włączająca w przedszkolu i szkole*
Vol. 8: *Kreatywność w systemie edukacji*
Vol. 9: *Wykształcenie zawodowe. Perspektywa systemu edukacji i rynku pracy*

More FRSE publications are available at
www.czytelnia.frse.org.pl

FRSE Publications

Foundation for the Development of the Education System

Erasmus+

European Funds
Knowledge Education Development

Republic of Poland

European Union
European Social Fund

The Teacher Education Policy in Europe (**TEPE**) Scientific Network is an academic network that builds on the work and community from the previous European collaborative projects in the field of teacher education policy, including TNTEE and EUDORA. TEPE Network central goals relate to advancing research in and on Teacher Education, increasing mobility and extending the European Dimension in Teacher Education, enhancing quality through the renewal of evaluation cultures in Teacher Education.

The motivation for the theme of this book, *Studies on Quality Teachers and Quality Initial Teacher Education*, has been to share with the readers knowledge and expertise in the field of teacher education as well as to create a platform for contributing to the discussion on how to best ensure that teachers and teacher educators are able to meet the challenges of the contemporary society head-on, and for their concern about understanding today in order to build our future better.

Foundation for the Development of the Education System (FRSE) operates as the Polish National Agency of the Erasmus+ Programme implemented in the years 2014–2020 and as the Polish National Agency of the European Solidarity Corps. FRSE is also responsible for other European educational and information initiatives in Poland, such as eTwinning, Eurodesk, Eurydice, Europass, ECVET and EPALE. The Foundation also supports cooperation with countries in the East via the Polish-Lithuanian Youth Exchange Fund, the Polish-Ukrainian Council of Youth Exchange, SALTO-EECA Eastern Europe and Caucasus Resource Centre. Since 2014, FRSE has been involved in the implementation of the Operational Programme Knowledge Education Development. The Foundation organizes many educational events including competitions promoting projects' results. It coordinates the European Youth Week and coorganizes events in the framework of the European Day of Languages. It also conducts research. FRSE Publishing House issues, among others, such quarterly periodicals as *Języki Obce w Szkole* (*Foreign Languages at School*) and *Europa dla Aktywnych* (*Europe for the Active*).

Free copy

www.frse.org.pl