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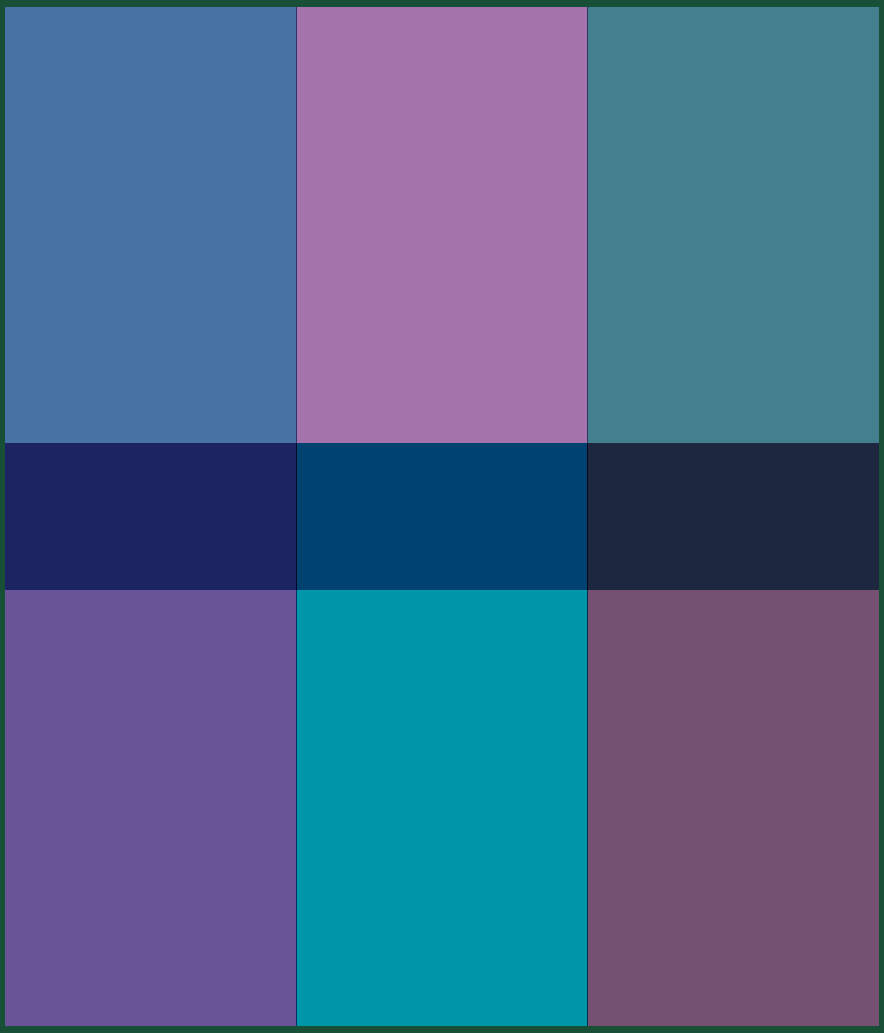

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The CEPS Journal is an open-access, peer-reviewed journal devoted to publishing research papers in different fields of education, including scientific.

Aims & Scope

The CEPS Journal is an international peer-reviewed journal with an international board. It publishes original empirical and theoretical studies from a wide variety of academic disciplines related to the field of Teacher Education and Educational Sciences; in particular, it will support comparative studies in the field. Regional context is stressed but the journal remains open to researchers and contributors across all European countries and worldwide. There are four issues per year. Issues are focused on specific areas but there is also space for non-focused articles and book reviews.

About the Publisher

The University of Ljubljana is one of the largest universities in the region (see www.uni-lj.si) and its Faculty of Education (see www.pef.uni-lj.si), established in 1947, has the leading role in teacher education and education sciences in Slovenia. It is well positioned in regional and European cooperation programmes in teaching and research. A publishing unit oversees the dissemination of research results and informs the interested public about new trends in the broad area of teacher education and education sciences; to date, numerous monographs and publications have been published, not just in Slovenian but also in English.

In 2001, the Centre for Educational Policy Studies (CEPS; see http://ceps.pef.uni-lj.si) was established within the Faculty of Education to build upon experience acquired in the broad reform of the national educational system during the period of social transition in the 1990s, to upgrade expertise and to strengthen international cooperation. CEPS has established a number of fruitful contacts, both in the region – particularly with similar institutions in the countries of the Western Balkans – and with interested partners in EU member states and worldwide.

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Revija Centra za študij edukacijskih strategij je mednarodno recenzirana revija z mednarodnim uredniškim odborom in s prostim dostopom. Namenjena je objavljanju člankov s področja izobraževanja učiteljev in edukacijskih ved.

Cilji in namen

Revija je namenjena obravnavanju naslednjih področij: poučevanje, učenje, vzgoja in izobraževanje, socialna pedagogika, specialna in rehabilitacijska pedagogika, predšolska pedagogika, edukacijske politike, supervizija, poučevanje slovenskega jezika in književnosti, poučevanje matematike, računalništva, naravoslovja in tehnike, poučevanje družboslovja in humanistike, poučevanje na področju umetnosti, visokošolsko izobraževanje in izobraževanje odraslih. Poseben poudarek bo namenjen izobraževanju učiteljev in spodbujanju njihovega profesionalnega razvoja.

V reviji so objavljeni znanstveni prispevki, in sicer teoretični prispevki in prispevki, v katerih so predstavljeni rezultati kvantitavnih in kvalitativnih empiričnih raziskav. Še posebej poudarjen je pomen komparativnih raziskav.

Revija izide štirikrat letno. Številke so tematsko opredeljene, v njih pa je prostor tudi za netematske prispevke in predstavitve ter recenzije novih publikacij.

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Varia

Review

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Editorial

Changing Teacher Education for Changing Schools

The thematic focus of the last issue in volume thirteen of the CEPS Journal is 'Changing Teacher Education for Changing Schools'. The discussion around how teachers behave in their roles and how they behave in school (Beijaard et al., 2000; Hargreaves, 1994) is closely related to policies and practices in initial teacher education. In parallel, teacher education has been subject to continuous reform in recent decades. The debate has been centred around the demands for teacher qualification levels, the competencies and skills that teacher education graduates need to acquire as they transition to school, and the ways teacher education is responding to the ever-increasing pressure on the teaching profession to change. While the trend towards increasing teacher qualifications (making the master's level a minimum requirement) at the international level has continued without any critical review, the developments around the other two dimensions remain an important topic of debate in academic literature and policy debates.

One important theme in addressing the above dimensions is how teacher education is bridging the theory-practice gap (Kelchtermans & Ballet, 2002) and handling the dichotomy between an academic and a pedagogical orientation with regard to the task of teaching (Beijaard et al., 2000). The traditional views of perceiving the task of teaching as knowledge transfer have been countered by views that teacher education needs to prepare prospective teachers for broader roles of dealing with the complexities of learning and the societies they serve. In light of this evolving understanding of the roles of teachers, the concept of pedagogical content knowledge for teachers has started to gain greater importance (originating from Shulman, 1986).

While the struggle to determine the policy and practice of teacher education continues, more evidence is needed to delve deeper into what constitutes quality teacher education that prepares teachers to respond to the desired professionalism, reflecting the necessary competencies for and attitudes towards the task of teaching.

The authors in the Focus section of this CEPS journal more specifically focused on the following questions: 1) What are good models of initial teacher education to address the concepts of academic knowledge, general education knowledge and subject pedagogy in such a way that they all interrelate in preparing teachers for the todays' school systems?, 2) How can initial teacher education manage the local and external pressure that is exerted on the teaching profession in relation to the balance between academic and pedagogical

orientation?, 3) How can teacher education institutions manage the tensions between the academic and pedagogical dimensions of preparing teachers, ensuring an adequate balance?, and 4) What are good practices of addressing the theory-praxis gap during initial teacher education including the elements of school placement?

In the present issue of the CEPS Journal, 11 authors from different countries discuss the importance of changing teacher education for changing schools in their papers. Three papers are part of the Focus section, and seven papers, written by 17 authors, can be found in the Varia section of the present issue. At the end, one book review is also presented.

The first paper by Ilich Silva-Peña, Julio Hizmeri, Roxana Hormazábal-Fajardo, Bessie Rojas-Rodríguez, Enriqueta Jara-Illanes and Gustavo González-García, entitled *Practicum of Early Childhood Teacher Students in Pandemic Times: A Narrative Perspective*, deals with one specific aspect in which the Covid-19 pandemic affected teacher education. In the context of the pandemic, universities had to adapt quickly through emergency pedagogy. One of the problems that emerged was the relationship between schools and teacher students. The situation was more critical in early childhood teacher education than in others. The conditions forced them to adjust to the absence of children in the student teachers' practicum. The article addresses the relational problem in practicum in early childhood teacher education. Through a narrative inquiry with two early childhood education teacher students, we give an account of learning experiences in different educational spaces. During the analysis, two concepts emerged: 'the classroom taste' and 'presence' in teacher education. The research enables us to reflect on the essential focus of the practicum in early childhood teacher education from the perspective of these two concepts.

In the second paper, entitled *An Exploration of Teacher Leadership: Are Future Teachers Ready to Lead?* Jetë Aliu and Fjolla Kaçaniku discuss the teaching profession, which has become increasingly complex in recent decades. The changing role of teachers has called for a new paradigm of the teaching profession that recognises the potential of teachers to lead in supporting school development and change. The influence teachers have on the school community and their commitment to school change are at the core of teacher leadership definitions. Preparing future teachers to act as leaders in their schools can support the overall efforts for school improvement. Hence, this study aims to explore pre-service teacher leadership development. The study utilised a qualitative methodology to address 1) pre-service teachers' understanding of teacher leadership, 2) the role of initial teacher education in shaping the understanding of teacher leadership and 3) the contribution of initial teacher education

to pre-service teachers' readiness for exercising leadership roles for school improvement. The study was conducted with pre-service teachers in Kosovo›s leading initial teacher education institution. A total of 42 pre-service teachers from all years of the primary teacher education programme participated in four group interviews with the aim of discussing in depth the core elements of teacher leadership in order to better grasp the pre-service teachers' understanding of this concept as well as their readiness to exercise leadership roles. The findings reveal that there is no consensus on the definition of teacher leadership and that the understanding of teacher leadership is based on the contextually drawn vision of what it means to be a teacher, influencing a narrow view of leadership towards individual and classroom levels. This study concludes that initial teacher education has a critical role in contributing towards shifting the conceptualisation of teacher leadership beyond the isolated views of individual and formal leadership. The findings of this study have imperative implications for providing good models of initial teacher education that support the preparation and readiness of future teacher leaders to tackle the ever-increasing complexities of the teaching profession.

In the next paper by Susanne Kink-Hampersberger, Lisa Scheer and Iris Mendel, *Between Academia and School: Habitus Reflexivity as One Way of Dealing with the Theory-Practice Tension in Teacher Education*, the authors discuss issues concerning teacher education's primary goal is to train prospective teachers, which differs from study programmes, such as philosophy or mathematics, that do not cater to defined professions. This traditional understanding of the teaching profession becomes apparent when students ask: 'How is this content, topic, method, task, or question relevant to school work?' It is also reflected in the inclusion of practical school training in teacher education curricula. In Austria's teacher training, these practical elements are accompanied by theoretical and methodological teaching foundations. However, students often question the applicability of theoretical knowledge to the teaching profession, which creates tension between the academic and pedagogical orientations. This paper discusses these very theory-practice tensions in teacher education based on findings from the project 'Habitus.Power.Education', which involved students and teachers at an Austrian university. We argue that teacher training at universities is neither merely a place for producing a future workforce nor a self-growth space without purpose. Teacher training, rather, combines both (sometimes uncertain) elements: education in its broadest sense and professional training. Using empirical material, it is shown that the theory-praxis gap manifests in the tension between academic and pedagogical orientation. To address and mediate this tension, the concept of habitus reflexivity is proposed.

Promoting such a form of reflexivity among students makes it possible to bridge the gap between the different logics of university and school. Furthermore, it helps to comprehend inequality and power imbalances in the education system and develop agency, which is essential for navigating the ever-changing and complex world of modern schools.

The next seven papers belong to the Varia section of the issue. The paper entitled *Disciplinary Differences and University Teachers' Perspectives: Possibilities of Applying the Teaching Perspectives Inventory* by Jovana Milutinović, Biljana Lungulov, and Aleksandra Anđelković examines the differences in the university teachers' perspectives from various academic disciplines and faculties. Their research also aimed to validate the Teaching Perspectives Inventory on a sample of 526 university teachers in Serbia. The results confirmed the differences in the university teachers' perspectives and led to the conclusion that hard science teachers were more teacher-centred, while soft science teachers were more student-centred. Additionally, exploratory factor analysis indicated that the slightly modified version of the TPI is applicable and reliable to use in other educational contexts. The authors concluded that research on teachers' perspectives is limited to specific cultural, educational, and research contexts.

The fifth paper, entitled *Validation of the Strategy for Determining the Numerical Rating of the Cognitive Complexity of Exam Items in the Field of Chemical Kinetics*, by Saša Horvat, Dušica Rodić, Nevena Jović, Tamara Rončević, and Snežana Babić-Kekez validates the strategy for the assessment of the cognitive complexity of chemical kinetics exam items. The strategy included three steps: 1) assessment of the difficulty of concepts, 2) assessment of distractor value, and 3) assessment of concepts' interactivity. One of the tasks was to determine whether there were misconceptions by students that might have influenced their achievement. Eighty-seven students in the first year of secondary school participated in the study. A knowledge test was used as a research instrument to assess the performance, and a five-point Likert-type scale was used to evaluate the perceived mental effort. The strategy was validated using regression analysis, from which significant correlation coefficients were obtained between selected variables.

The next paper, by Beata Horníčková, entitled *University Preparation of Kindergarten Teachers for English Teaching in the Czech Republic*, aims to determine the level of preparation of future teachers for teaching English to pre-primary school children at individual universities in the Czech Republic. It presents findings obtained through quantitative content analysis of the syllabi of eight universities that provide education in teacher training for kindergartens and focus on preparing future teachers for English teaching. The results

show that courses for English teaching in kindergarten are not implemented by every university. Universities differ in their emphasis on foreign language tuition in kindergarten, reflected in the number and content of provided courses.

The seventh paper, entitled *The Saga of Academic Autonomy in Slovenia (1919–1999)* by Pavel Zgaga, examines the concept of academic autonomy within the 'Yugoslav model' of higher education as a peripheral system characterised by an eclectic mix of elements from different systems, resulting in mutations with unique features during its development. The hitherto under-researched history of this higher education model has by no means been uniform or linear; because of this complexity, the focus here is limited to the case of Slovenia but considers the broader context. The focus is on the understanding, legislation, and (non-) implementation of academic autonomy as articulated between 1945 and 1991. The concept was inherited: it was never used in the legislation of federal socialist Yugoslavia, yet it was used in political and public debates. Our analysis relates these debates to the rapidly changing legislation and the broader socio-political context. Although the 'Yugoslav model' has vanished, its traces and ashes, including old contradictions and dilemmas, remain partly present in the higher education systems of independent states that emerged on the territory of the former federation. The principle that knowledge of the past is the key to understanding the present and approaching the future is also confirmed in this case.

The next paper, by Kimberly Battjes and Lilly Zane Kaplan, entitled *Zero Tolerance vs Restorative Justice in the United States*, discusses discipline policies in schools across the United States. They argue that as schools have begun to move away from the harsh 'Zero Tolerance' policies that characterised the better part of the previous three decades, there is an opportunity to change the focus of school discipline. Frequently, school discipline policies are centred on punitive approaches that separate students from their peers. Rather than meeting the needs of these students, schools alienate them from their peers, teachers, and school communities. The goal of the education system is to provide children and adolescents with a high-quality education that will allow them to grow into productive and participating members of society. Zero Tolerance and school discipline policies were created to protect students, but, in practice, these policies have proven to be harmful and have unintended consequences. Too often, punitive disciplinary action in the school setting puts students on a pathway to the juvenile or criminal justice system. Although the Zero Tolerance policy is a federal initiative, many states are beginning to realise the harmful impacts this policy has on students, especially marginalised students. As a result, states are beginning to pass legislation that veers away from Zero Tolerance, focusing more on alternatives like restorative practices.

The ninth paper, entitled *Recognising and Expressing Emotions: Difficulties of Children with Autism Spectrum Disorder in Learning a Foreign Language and How to Resolve Them*, by Ayşe Tuna, presents the meaning of recognising emotions, facial expressions and tone of voice and body language. It also illustrates expressing and managing their own emotions; understanding and responding to other people's emotions are often difficult for children with autism spectrum disorder. Since the emotional codes of individuals with autism spectrum disorder are different, those people will possibly be awkward in expressing some throughout their lives. Although it might seem that children with autism spectrum disorder do not respond emotionally, the ability to understand their facial expressions could lead to an improvement in their social interaction difficulties. In addition, since autistic expressions might be unique to each child, recognising their emotions is important when delivering a personalised intervention to a child with autism spectrum disorder. In recent decades, researchers have become increasingly interested in the role of emotions in learning and teaching a foreign language beyond heavily investigated topics such as foreign language anxiety and motivation and attitudes towards the foreign language. This paper presents how emotions impact the motivation and success of children with autism spectrum disorder while they are learning a foreign language. Challenges, opportunities, and future research directions in this domain are given.

The last paper of this issue, by Jure Žabkar, Tajda Urankar, Karmen Javornik, and Milena Košak Babuder, entitled *Identifying Reading Fluency in Pupils with and without Dyslexia Using a Machine Learning Model on Texts Assessed with a Readability Application*, presents the study of building a machine learning model. This model discriminates between pupils identified with dyslexia and a control group without dyslexia based on fluency in oral reading of texts assessed with a readability application developed within the project 'For the Quality of Slovenian Textbooks'. We focus on differentiation between both groups of pupils by analysing data obtained from transcriptions of audio recordings of oral reading. The empirical study was conducted with 27 pupils aged 8 and 9 with officially diagnosed dyslexia and a control group without identified dyslexia.

The issue concludes with the book review by Katja Koren Ošljak. She analyses and evaluates the book by Giovanna Mascheroni and Andra Siibak with the title *Datafied Childhoods: Data Practices and Imaginaries in Children's Lives*.

Janez Vogrinc and Blerim Saqipi

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Practicum of Early Childhood Teacher Students in Pandemic Times: A Narrative Perspective

Ilich Silva-Peña*[1], Julio Hizmeri[2], Roxana Hormazábal-Fajardo[3], Bessie Rojas-Rodríguez[3], Enriqueta Jara-Illanes[4] and Gustavo González-García[5]

The Covid-19 pandemic affected teacher education; universities had to adapt quickly through emergency pedagogy. One problem that emerged was the relationship between schools and teacher students. The situation was more critical in early childhood teacher education than in others. The conditions forced them to adjust to the absence of children in the student teachers' practicum. This article addresses the relational problem in a practicum in early childhood teacher education. Through a narrative inquiry with two early childhood education teacher students, we give an account of learning experiences in different educational spaces. During the analysis, two concepts emerged: 'the classroom taste' and 'presence' in teacher education. The research allows us to reflect on the essential focus of the practicum in early childhood teacher education from the perspective of these two concepts.

Keywords: Chile, teacher education, post-pandemic, body, virtual education

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Praksa bodočih učiteljev v zgodnjem otroštvu med pandemijo: pripovedna perspektiva

Ilich Silva-Peña, Julio Hizmeri, Roxana Hormazábal-Fajardo, Bessie Rojas-Rodríguez, Enriqueta Jara-Illanes in Gustavo González-García

Pandemija covida-19 je vplivala na izobraževanje učiteljev; univerze so se morale hitro prilagoditi s pomočjo nujne pedagogike. Ena izmed težav, ki se je pojavila, je bil odnos med šolami in bodočimi učitelji. Položaj je bil v izobraževanju bodočih učiteljev učencev v zgodnjem otroštvu bolj kritičen kot na drugih področjih. Zaradi razmer so se morali bodoči učitelji med opravljanjem svoje prakse prilagoditi odsotnosti otrok. Članek obravnava problem odnosov v praksi pri izobraževanju bodočih učiteljev v zgodnjem otroštvu. Skozi pripovedno raziskavo z dvema študentoma poučevanja v zgodnjem otroštvu podajamo poročilo o učnih izkušnjah v različnih izobraževalnih prostorih. Med analizo sta se pojavila dva pojma: »okus razreda« in »prisotnost« v izobraževanju učiteljev. Raziskava nam omogoča, da z vidika teh konceptov razmislimo o bistvenem poudarku prakse v izobraževanju bodočih učiteljev v zgodnjem otroštvu.

Ključne besede: Čile, izobraževanje učiteljev, postpandemija, telo, virtualno izobraževanje

Introduction

In most countries, initial teacher education occurs in university classrooms and practice centres, with a permanent tension between both areas (Russell & Martin, 2017). In the case of Chile, early childhood teacher education is the responsibility of universities through a concurrent model, simultaneously developing the pedagogical and disciplinary education together with initial, intermediate, and practicum (professional practices or final practice) (Concha-Díaz et al., 2022). However, considering the emphasis on practical knowledge at a distance from academic, deductive, or consecutive curricula, there is a broad defence for the balance between practical and theoretical education (Kelchtermans & Ballet, 2002; Silva-Peña et al., 2019; Vaillant, 2021). The practicum is a space in the initial teacher education that merges such theoretical education as practical formation; moreover, it is essential for encountering children ranging from three months to five years in a diverse and changing environment. However, as is known, this space changed during the pandemic times (Fernández et al., 2022; Flores & Gago, 2020) as a consequence of changes in the schools (Dussel, 2020; Silva-Peña & Paz-Maldonado, 2021).

The teaching presence and 'the classroom taste.'

A broad perspective on education gives a more complex background to understanding the rationality of practice and teaching knowledge. In this way, we found a reflective approach to practice and an epistemological turn towards practice (Schön, 1983) or experience (Dewey, 1938) to address dimensions of reality that, from more traditional logics, had remained invisible. From more phenomenological approaches (Van Manen, 2023), the concern is oriented towards understanding the experiences lived in the classrooms and the meaning of pedagogical sensitivity (Contreras, 2013; Van Manen, 2016, 2023).

If we pay attention to the sensory sphere, we can visualise education from another perspective. In a way, we can change the teaching and attend to the sense dimension lodged in the body. Having the educational relationship as a background links it with a broader concept of 'presence' in education, understood as knowing how to be physically and symbolically in that relationship of otherness. In the words of Rodgers and Raider-Roth (2006), presence implies:

> […] a state of alert awareness, receptivity, and connection to the mental, emotional, and physical functioning of both the individual and the group in the context of their learning environments, and the ability to respond with an improved, thoughtful, and compassionate next step. (p. 265)

This study uses the term 'taste' to refer to creating pleasure in a specific practice. More precisely, we speak of 'the classroom taste' as a term based on research conversations with teacher students (see results). This term is similar to the taste (for science) Anderhag, Hamza, and Wickman (2015) used. Based on Bourdieu's (1984) sociology of taste and Dewey's (1913) notion of interest, the authors refer to taste as an interest socially constituted. Both perspectives coincide on understanding the education system as a significant space for acquiring habits or interests.

It is necessary to delve into, make visible, and reflect on these dimensions, even more so when education in a pandemic transfigures the sense of presence. Moreover, it is beneficial to continue considering the importance of understanding what sustains taste or the desire to teach from initial teacher education. Above all, when attention to the measurement of excellence anaesthetises attention to education as an aesthetic experience (Biesta, 2022), early burnout becomes an important educational issue (Clandinin et al., 2015; Kelchtermans, 2017). Next, sensory comprehension becomes more relevant, and the study of presence and 'the classroom taste' becomes necessary, especially after life in a pandemic. In the case of early childhood teachers, students had a challenging experience.

The practical education of early childhood teachers

An essential discussion in the literature on teacher education is the distance between the world of the university and the school (Darling-Hammond, 2006; Korthagen, 2016; Zeichner, 2010). This concern takes on a meaningful connection when it is necessary to advance towards experiential education (Contreras, 2016; Russell & Martin, 2017; Zeichner, 2010). Also, it is a discussion that focuses on this 'jump' from the university to the educational centres, something that has been called the 'praxis shock' (Veenman, 1984). Some are making theoretical efforts to understand this phenomenon through micropolitical literacy (Kelchtermans & Ballet, 2002; Silva-Peña et al., 2019), among other options.

In this way, the universities are more aware of this teacher education that derives from practice (Darling-Hammond, 2006; Loughran, 2006; Munby et al., 2001; Schön, 1984). A vision from this epistemology will enable us to conceptualise learning from experience. This means changing the inherited models from an application tradition and moving towards a model in which pedagogical practices are the axes of teacher training (Craig, 2016). In this scenario, the practicum has gained presence together with the search for devices

to mobilise reflective practices as a driver of professional development through the construction of practical or experiential knowledge (Hizmeri et al., 2021; Grossman et al., 2009; Tardif, 2004).

Teacher education in pandemic times

In March 2020, the arrival of a deadly coronavirus was officially announced. It quickly spread worldwide, generating a global health crisis (WHO, 2020). In Chile, as in other countries, different proposals were designed to mitigate the effects of the pandemic, which impacted all aspects of life, including work, education, and social life. One of the actions to prevent the spread of the virus was to close the schools (UNESCO, 2020; Van Lancker & Parolin, 2020).

The pandemic in Chile, as elsewhere, eliminated face-to-face contact in schools. Classes became virtual, and we had to react quickly to continue with formal education through emergency classes (Silva-Peña, 2020), which is a context that more clearly evidenced social and educational problems of social justice (Flores & Gago, 2020; Paz-Maldonado et al., 2022; Fernández et al., 2022). Moreover, the closure of educational establishments impacted future teachers' education, particularly the practicum.

The closure was not limited to nurseries, kindergartens, or schools. The end of face-to-face classes affected universities, forcing them to organise various paths to ensure educational continuity. In the case of initial teacher education, classes were held through virtual devices and mechanisms to provide an educational space remotely. Although with greater complexity, the same occurred with the practicum in academic centres, marking a break from the usual ways of teaching. For early childhood education students, the practicum involved an absence of direct contact with boys and girls. Instead, the practicum supported the early childhood educator student teachers who had contact with families. As a result of physical distancing and non-attendance presence, future early childhood educators found themselves challenged to rethink pedagogical practices, explore new paths of learning, reassess the role of families, and scrutinise their initial education and the sense of their vocation.

This article aims to analyse the meaningful experiences in the practicum in the education of early childhood teachers, using a narrative methodology to deepen the formative sense of these experiences that had the peculiarity of being given in the context of virtual education. However, research retains the relational dimension of practical training and knowledge constructed from experiences. So, even though this study examines an unusual or atypical educational setting that changed how the practice was taught and carried out, the

most important thing is to learn more about the essential parts of the educational task that become clearer when it is done virtually, showing how important they are for the growth of a sensitive and relational educational practice. In short, through the concepts of presence and classroom taste, we seek learning that allows us to contribute to the practical training process of early childhood educators.

Method
Narrative inquiry in pandemic times

Our research began in 2020, the same year as the pandemic. In the project's first phase, we carried out self-exploration regarding the teaching practice experiences we had experienced in our academic journeys. In the second phase, we began to work with the first participants, two early childhood education students from a university in northern Chile, whom we called 'Darocy' and 'Gaby', who were carrying out their professional practice process. All our research is based on narrative inquiry as an epistemic-methodological, ontological, and ethical proposal (Clandinin, 2013; Clandinin & Connelly, 2000). This perspective enables us to understand the experience from the stories shared by the participants. Thus, we co-construct the inquiry through the relational work between researchers and participants (Alfaro & Guíñez, 2018; Alcántara & Silva-Peña, 2022), shaping the exercise of living, telling, retelling, and reliving stories (Clandinin & Huber, 2010).

Researchers Bessie and Ketty began working with Darocy and Gaby, respectively. Due to the restrictions caused by the pandemic, the meetings were held virtually. There were six meetings over the course of four months. In the first meeting, we asked Darocy and Gaby to build their lifelines and associate these pieces of the puzzle with certain milestones that they consider crucial concerning their training processes and the practices they have gone through. According to these threads and our research objective, we established the topics of conversation with them. This article focuses on the practice processes they experienced remotely, as it was the first record of this class format due to the pandemic. We sought to weave a story that would help us understand their feelings and pedagogical thinking to face the scenario of that time of pandemic and lockdown in classrooms and schools.

After each meeting, the researchers reviewed the recordings of the meetings to organise the information and create the stories that formed narrative stories (Clandinin, 2013). We applied narrative analysis to explore the themes the participants were raising; that is, we focused on the meanings they were

giving to their stories (Benson, 2018) and that, in many cases, they had common meanings and differed in others. Bessie and Ketty raised emerging themes and questions in weekly team meetings. We discussed the feelings and pedagogical thinking that emerged from each story, inviting us to think and reflect. The collective discussion enabled us to reflect on what was happening. As teacher educators, we set our sights on the difficulty of training in this emergency: in virtual, terrifying, and confined conditions.

Several months later, the researchers negotiated the narrative account (Clandinin, 2000, 2013) with the participants in person, thanks to the end of the so-called lockdown. The conversations and analysis with the research team, the recorded recordings, the stories written by Bessie and Ketty, and the negotiated text all played a role in its creation. Each researcher agreed on a day and place to negotiate the narrative account, which consisted of reading the text together. Thus, Darocy and Gaby reviewed the stories and expressed their approval or modification in some paragraphs to include the final text. Darocy and Gaby's stories allowed us to examine that process with nuance and pedagogical sensitivity.

Results
Practicum stories of two early childhood teacher students in pandemic times

Here, we share the result of our narrative analysis of work alongside two early childhood education students in their last year of initial teacher education. First, we reflect alongside Darocy's narrative account, whom Bessie accompanied. Then, we will continue with stories from Gaby, who worked with Ketty. Both told us about their experiences with teacher education and practices that clashed with virtuality during the pandemic.

Darocy's Story. The classroom taste.

The meetings between Bessie and Darocy began in 2020, the first year of the pandemic, amid strict lockdown. In addition, all educational spaces in the country remain closed. Despite living in the same city, the meetings must be held online. The virtual connection does not impede deep conversation, reflecting together on what is happening in teacher education. One of the first things Darocy tells Bessie is her desire to work in an activity room at a family health centre. That aspiration made Bessie remember her experience as an educator in contexts of poverty, so she can connect very well with Darocy's ideal of being

in places where every contribution to children's care is valuable. That conversation is also transferred to the research team. On several occasions, we discussed why we began our careers in pedagogy and the different world we are discovering when working with students in more challenging economic conditions. Darocy's surprise was aroused when she learned that the work of early teacher education was not limited only to kindergartens.

> *When I knew there were other options, I kept thinking. Since I entered the first year and knew that the educators were in the health centres, I was surprised... it had not crossed my mind. Later, I went to some sessions my nephew had in the familiar health centre; they taught him motor skills. That was beautiful work; they made my nephew sit on a mat, which was wonderful' (Narrative account)*

Darocy says that seeing the setting of the activity room—all the work with her nephew, the motor skills games that the educator played, the movements, that one-on-one relationship, and the enthusiasm—sparked her motivation for studying early childhood education. There was something in how the educator built a relationship with her nephew that made Darocy feel called to that role. One of the sentences loaded with conviction that she says to Bessie is: 'I want my first job to be in the classroom. I want to feel that taste.'

That 'taste' was elusive during her formative years as an early childhood teacher, not only because of the pandemic we experienced but also because of the citizen mobilisation in October 2019 in Chile (Silva-Peña et al., 2022; Borzutzky & Perry, 2021). As a result, when she started the research conversations, she had a year without being able to get close to 'the classroom taste', as she describes it. She says the last year has been challenging because she had other expectations, such as getting closer to the children and beginning to enjoy the classroom.

> *I cannot believe I am finishing my studies. It has all been so fast, so hard. I had other expectations for this year... but things turned out that way, and you have to make the most of things and get positive. (Narrative account)*

As with all early childhood teacher students, the practice carried out by Darocy was through computer screens. It was about getting the preservice teachers to support the educator. In the case of early childhood education, there was no direct contact with children; that is, they could not interact with them in that so-called 'learning space,' not even through a device's screens. Her collaboration as an educator in practice consisted mainly of developing strategies to support the task of the educator guide; they created many pedagogical resources, designed and planned learning experiences, and did some administrative

work. However, no matter how well executed the task was, it was devoid of the enjoyment Darocy refers to as 'the classroom taste'.

Despite this context, Darocy speaks to us very appropriately about her work. Like her colleagues, she created infographics for the families, building a learning path through design, document preparation, and analysis. For this educator in training, it meant new ways of learning. She also gave her tools to engage in conversations with her supervisor to know how the job was done. Darocy handles new codes. Moreover, here, our first questions arise: How will the new codes these educators acquired during the pandemic affect them? How will this rather theoretical learning of the practical be configured when the new educators are in the classrooms in person?

Darocy allows us to reflect on what we experience as teacher educators. The 'taste' reverberates with us because, just as it does for her, it also makes sense to us; we also miss the taste we knew from the wards, even when that taste included sour as well as sweet. In our reflections as the research team, we see that 'the classroom taste' is no longer sustained only by the enjoyment that the educational relationship produces. Learning that taste implies a new configuration. To taste that space requires unique codes, ways of speaking and acting, and a specific sensitivity to the educational world one wants to inhabit, the world of boys and girls. We understand that an essential part of this configuration is learned and acquired during initial teacher education. The practicums are those times and spaces where what is seen in the fragmented theory holistically makes sense. For future educators, that is where those ingredients produce the distinct flavour of each classroom.

In conversations with Darocy, Bessie finds part of that sour flavour also felt in the classes on those days. The difficulties of the practice were seasoned with that foul taste that we all feel at some point during the pandemic. However, the conflicts seem the same despite being in a different environment.

> *Darocy perked up to ask the practice supervisor if you could assign tasks in her role as coordinator (the same one she assumed because no one else was encouraged). The supervisor enables her to organise the assignment, but simultaneously, she doubts, does not want to, and fears being imposed or described as authoritarian. Finally, her colleagues respond to her and send their part of the work. Their lack of implication is old. Darocy thinks that they are often individualistic in front of jobs and people. You wonder what it will be like when you find them, no longer as classmates, but at work. She chose this career by vocation, reaffirming her commitment to a task that, at times, you find thankless...She wants to treasure the sweetness of the classroom taste for long enough to swallow the other ones, the bitter moments. (Narrative account)*

Darocy anticipates that the leadership she assumed in her career is necessary for the role of early childhood teacher. Somehow, that 'classroom taste' (not yet experienced by herself as it would have been in a face-to-face practice) is strong and is in her memory; we wonder if it may be part of what is understood as a vocation. The role that she assumes among her classmates seems to be that she does not stray from what the 'classroom taste' causes her because she not only looks at the present critically concerning the apathy with which other educators in training show themselves. Rather, it makes her wonder about the future of these childhood rooms, that is, her professional development and what she takes to the world of children.

When we finish the conversations, our participant, soon to finish her degree, wants to stay in the city where she lives and to work in a kindergarten; the health centre will come later. Now, the need and the desire are to be in a traditional centre, to 'feel that special taste of being there in the classroom', as she says. For her, that unique taste is being with boys and girls, receiving a baby, watching the first steps of a girl and observing how others go from the first babbling to one phrase with these natural language difficulties. Maybe, she thinks, watching someone learn to tie their shoelaces and clean the tempera stains on the wall before the supervisor arrives. The flavour she is talking about also refers to the ethics and aesthetics of teaching work as an early childhood educator. From what she indicates and describes, taste guides the care of childhood, the sensitivity of the pedagogical gaze in the world of boys and girls, and how that world is built for them to inhabit.

Gaby's story. Virtual 'Practice'? Learning presence from absence

It is 2020, and Ketty invites Gaby to participate in this research to share her practice experiences in a virtual context. Like many other students in Chile, Gaby saw face-to-face attendance cut short by the pandemic and the social upheaval experienced there since October 2019. Ketty and Gaby had these research conversations during the pandemic, which were also done through a virtual platform. Since Covid-19 caused the lockdown and virtualisation of education, a strangeness has manifested in Gaby regarding her previous experience. Her questions were felt in those conversations: Where was that sense of being in the classroom with others? What is this new virtual practice?

> *Gaby comments that this 'virtual practice has been strange', since they have experienced minimal approaches to the classroom, the kindergarten and working with children. During the first semester of 2020, the contact with children was reduced and spaced out in time; in the second semester,*

> *it was much scarcer, if not almost non-existent. This situation causes sadness in her because 'I lost this year as a result of this pandemic.' Gaby points out that 'not having' or 'losing' this face-to-face experience in the classroom with the boys and girls is something she 'cannot overcome'. She indicates that she does not stop feeling that she is losing an essential part of her university experience, especially since she is in her fourth year of formation, with only one semester left to graduate. (Narrative account)*

Absence has begun to characterise a way of learning that is so appropriate and natural to practice: being in relationship. Especially in early childhood education, the educational experience calls for bodies, voices, aromas, games, songs, holding hands, getting dirty, and many things to be done with others. In her story, nostalgia appears for those practice opportunities that she could experience before virtuality; that sensation lies in the possibility of being moved and feeling love for educating, for childhood, for those boys and girls with whom she worked in early childhood.

> *Gaby describes that the children she worked with in that previous practice were between one and two years old. She expressed that immediately she 'fell in love with them' because she experienced the feeling that 'you were in the right place and you were doing well', reaffirming that you had found the perfect career for you. (Narrative account)*

The emotion that remembering herself in early childhood produces and that nostalgia for the experience that she lived in previous practices is brought to our team conversations. She invites us to reflect on what we also miss, which is the possibility of getting to know our students, even something that seems as simple as recognising their faces. We shudder in this dark face of the virtuality that the pandemic brought; many teachers never knew their students' faces. Cameras are turned off, anime photos replace the personal image, or just names' initials fill the screens. That virtuality that emerged abruptly and installed as the only possibility 'took away' from us what we took for granted in the classroom, which is the pedagogical encounter.

Along with Gaby's reflections and embodying the absence of the physical classroom space, the reality of the turned-off cameras challenges us as teachers of teachers. Beyond the fact that we were not prepared for this virtual reality (which, without a doubt, is an essential part of the problem), the questions that Gaby brings us, on the one hand, are how to learn to move through this form of practice that arises in teacher training during the pandemic experience, and, on the other, how we accompany these processes when we are also experiencing absence, perplexity.

Perhaps Gaby allows us to open the door to go beyond the loss we share as educators. That nostalgia becomes, at the same time, a feeling, a thought of what was lived in another time, when we did have those others, the physical classrooms, the patios and with that, for her, for example, the possibility to observe how one works in an educational space, even if that implied learning from what one does not want to become and do.

> *Practicums are super important. Apart from the regular attendance in the semester, in the major, we had an intensive week... all the classes and academic activities in the major were paralysed to be able to attend kindergartens. I still saw many things I did not like about what was happening in the garden, which helped me decide what I should not do as an educator. In my last practice in person, I had the 'good luck' to attend three weeks. Today, I appreciate it because it is a space where I learned a lot. (Narrative account)*

The nostalgia for those experiences makes her remember, and the absence is filled with sensations, bodies and stories linked to the presence of a time that has passed. This invites us to think about what presence means (not face-to-face) in education, especially when discussing the practical education of future teachers. Therefore, presence becomes a necessity, a fundamental link, and a pillar of the sense of belonging in the educational field. When Rodgers and Raider-Roth (2006) refer to the presence in teaching, they refer to the 'alert awareness, receptivity, and connectedness to the mental, emotional, and physical workings of both the individual and the group in the context of their learning environments, and the ability to respond with a considered and compassionate best next step' (p. 265). So then, we take into account the presence concept in addition to Gaby's words:

> *With great conviction, Gaby stares at the camera and points out that, despite the lack of resources seen in the kindergartens where you have practised, something can always be done for children's education, like what she experienced in early childhood practice. 'Yes, you can, and that is why I was there. Sometimes, it is thought that nothing is taught in early childhood, but many elements associated with stimulation can be worked on with babies. If you could not do experiences with babies, you would only be in front of a childcare that cares for them until they are ready, [at the right age] to enter kindergarten.' For Gaby, working with babies is closely linked to attachment and affection. Perhaps for this reason, this area of early childhood education is the one she liked the most, which drew her to becoming a professional.*

The emotional attachment and affection that Gaby identifies in her early childhood practice with babies arise from being present in those educational activities. Although these babies are not in her classroom currently, they continue present-day at Gaby's classes and invite her to think of herself as an educator for the time to come. The same happens when we look at ourselves as teachers of teachers and narrative inquirers; our past students continue in the present day every time we teach a new lesson.

Discussion

The practicum has always been a complex experience in teacher education. In the case of initial teacher education during the pandemic, the practicum became more difficult due to the need to deal with a virtual environment (Flores & Gago, 2020). As we have said, in the case of Chile, in the context of emergency education (Silva-Peña, 2020), students of pedagogy joined the teaching work by supporting virtual work (Fernández et al., 2022). In the education of early childhood teachers, the relationship was not even with the children. The students' work was to support the early childhood educators (i.e., generating audio-visual material, reviewing plans, and managing) but never being face-to-face with children. The basic idea was that little boys and girls were not in front of the screen. The relationship was between the educators and the families, and the early childhood teacher students supported the early childhood teachers.

For the educators in training, the expected, desired, and imagined practice would occur in an educational centre where they would simultaneously experience their trade in relationships with boys and girls and their families. The expectation of the educators, especially the desired professional practice, is to inhabit these spaces and experience encounters with childhood, accompanying how the boys and girls would build their learning from their senses, feelings, emotions, thoughts, and bodies. In that place, they would also interact with the educators and other colleagues who would accompany that final transition in learning their profession. Everything would make the practicum a profoundly educational experience. In this manner, diagnoses, planning, learning situations, and dialogues with communities, families, and boys and girls would be conducted.

From the conversations with Darocy and Gaby, concepts such as 'the taste of the classroom' and 'absence' appear. That 'taste' is from the perspective that Anderhag, Hamza, and Wickman (2015) refer to when discussing the importance of creating learning environments that arouse interest and taste. This taste is also extrapolated to issues that we associate with the meaning of teacher education. The virtual experience did not end, and the uncertainty regarding

this pandemic continued; the sensation of absence and the lack of flavour forced us to think again about a problem in initial teacher education, namely, the need for practicum to become an experience of meaning. How do we recover that 'taste of the classroom' for those who did not have it all this time? How does the bitter taste of the pandemic not take away our desire to continue savouring educational places? How do we rethink and focus on teacher education feeling the pedagogical flavour? How can we teach taste and presence?

The questions lead us to think about how to create that taste and understand it as a meaningful experience for the classroom in the practicum. We cannot let that 'taste' be a spontaneous generation of students. We must create a meaningful, hands-on educational experience that builds that love for the classroom. Perhaps one way to approach it in its radical nature has been to understand teaching as presence (Rodgers & Raider-Roth, 2006). A relational presence does not refer exclusively to having people in front of you but to the fabric woven from the relationship or connection with others. The presence in teaching (Rodgers & Raider-Roth, 2006) is endowed mainly with meaning; that is, on the one hand, of the senses that are built around the teaching role, the educational work, and the pedagogical experience, and, on the other, of feeling and making one think that one is in a good physical and symbolic place, living the present time consciously connecting with what has preceded that being and with what we want to become.

The reflection about presence appears, starting with absence. The absence of contact between early teacher education students and children in the practicum reflects the importance of presence. The empty absence is not so, as it is populated with the knowledge carried as baggage in one's body. In this image of the future being drawn as a possibility of being, we also ask ourselves as a research team for future research: To what extent does doing a virtual practice contribute to teaching work characterised as a practice of presence? How do early childhood teachers who work with children in this context of distance sustain their work? What possibilities of learning or rethinking the educational relationship of presence have brought us the experience of virtuality in teacher education?

The pandemic interrupts that assumed ritual, which is the passage through the practicum. With that break, the imagined play environment characterised by the boys' and girls' murmuring, restlessness, and contagious energy vanishes. In the form of a desire for 'the classroom taste' or the need to sustain a presence in a context of absence, Darocy and Gaby reveal to us that what is at stake is the need to be in a relationship with children. For young educators, places matter and are an unavoidable condition in the educational process, inherent to the nature of the profession of educators. We need to reassess

the fundamental place that early childhood education occupies in the lives of children and their families since care, food, encounters, friendship, play, comfort, and learning occur in these spaces. At the same time, we must understand that teacher education is inextricably linked to those experiences from which essential pedagogical knowledge emerges to accompany childhood growth.

One idea that always arises in conversation is the tension between work that is rooted in the relational experience of childhood (the joy of being with girls and boys and accompanying their growth) and the uprooting that is pushed by the academic world, populated by abstract theories, distant and removed from the world of life and those who experience it. This distance is experienced in initial teacher education as two insurmountable worlds. This is where constructing a relational experience in teaching practice is necessary. Children did not experience care outside the home before school during the pandemic. They did not have the possibility of being cared for, and that bodily relational experience was not there. Claiming an experience, imagined or desired, also claims knowledge generated in that relationship. As teacher educators, we take what Kitchen (2020) points out regarding relational teacher education, which is the process of self-knowledge and knowledge of the different educational spaces. At the same time, as narrative inquirers, we consider the relational view that narrative inquiry proposes to us with a relational commitment, a relational investigation (Clandinin & Murphy, 2009). This training and research proposal entails a relational ethic and an ethic of care (Caine et al., 2020). The ethic of care is related to the relational experience. Its axis is the ethic of care, which must be maintained in every relationship. However, in the case of these children, it is even more fragile because this is a learning space for someone to take care of us (someone outside the home). This experience is fundamental for thinking about teacher education in post-pandemic times. What are future early childhood educators learning about presence in teacher education? This is a question for the schools of education. Are schools cultivating the 'taste of the classroom'?

Conclusions

In the context of emergency education, in times of the Covid-19 pandemic, the teaching world changed deeply. The educational task was wholly through a relationship under the virtual modality. However, at least in Chile, in early childhood education, things went even further. Not only was that direct relationship between educators and children missing, but in early childhood education, the virtual connection was mediated through the relationship with

families. In the case of the preservice early childhood education teacher, they had no direct or even virtual relationship with the children.

The stories told from that absence question us about what presence in education implies. It is in the encounter, in the childcare relationship, where a large part of the educational profession is learned, and pedagogical sensitivity is cultivated (the look, listening, touch, and tone necessary to accompany childhood) and the taste for teaching. The studies on educational experiences during lockdown are not only a summary of history since they leave us with a practical meaning that always implies a more sensitive understanding of the present and that predisposes us to face the vicissitudes of the future. In that case, we must ask ourselves what we have learned from this pandemic that better prepares us to address the tensions of the present and the future. In this context, we explore the learnings for teacher education in the future.

In addition to being a synthesis of the past, these stories teach us what is necessary to take care of in the future. Although our study does not exhaust the learning possibilities, it allows us to identify important aspects of the educational process. Specifically, the valuation of presence and taste are unavoidable dimensions of learning the craft of teaching. We know that education is a practice; therefore, the stories show us that teacher training cannot lose sight of an experiential or aesthetic dimension where learning and pedagogical sensitivity are forged. The stories reveal the importance of what was missing, which we can recognise as necessary. Absence highlights the centrality of presence and the awareness of the value of being in the present and caring for childhood as an essential condition to learn sensitively, or from corporality and taste, the educational profession.

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An Exploration of Teacher Leadership: Are Future Teachers Ready to Lead?

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The teaching profession has become increasingly complex in the last decades. The changing role of teachers has called for a new paradigm of the teaching profession that recognises the potential of teachers to lead for supporting school development and change. The influence teachers have on the school community and their commitment to school change are at the core of teacher leadership definitions. Preparing future teachers to act as leaders in their schools can support the overall efforts for school improvement. Hence, the purpose of this study is to explore pre-service teacher leadership development. The study utilised a qualitative methodology to address: (i) pre-service teachers' understanding of teacher leadership, (ii) the role of initial teacher education in shaping the understanding of teacher leadership, and (iii) the contribution of initial teacher education to pre-service teachers' readiness for exercising leadership roles for school improvement. The study was conducted with pre-service teachers in the leading initial teacher education institution in Kosovo. A total of 42 pre-service teachers from all years of the Primary Teacher Education programme participated in four group interviews with the aim of discussing in depth the core elements of teacher leadership in order to better grasp the pre-service teachers' understanding of this concept as well as their readiness to exercise leadership roles. A model devised by Snoek et al. (2019) was used as an analytical framework to determine the development of teacher leadership in initial teacher education. The study reveals that there is no consensus on the definition of teacher leadership. The findings show that the understanding of teacher leadership is based on a contextually drawn vision of what it means to be a teacher, resulting in a narrow view of leadership with regard to individual and classroom levels. The study concludes that initial teacher education has a critical role in contributing to shifting the conceptualisation of teacher leadership beyond the isolated views of individual and formal leadership. The findings have

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imperative implications for providing good models of initial teacher education that support the preparation and readiness of future teacher leaders to tackle the ever-increasing complexities of the teaching profession.

Keywords: teacher leadership, initial teacher education, pre-service teachers, school improvement

Raziskovanje vodenja pri učiteljih: ali so bodoči učitelji pripravljeni voditi?

Jetë Aliu in Fjolla Kaçaniku

Učiteljski poklic v zadnjih desetletjih postaja vse kompleksnejši. Spreminjajoča se vloga učiteljev je zahtevala novo paradigmo učiteljskega poklica, ki priznava potencial učiteljev za vodenje pri podpiranju razvoja in sprememb v šolah. Vpliv, ki ga imajo učitelji na šolsko skupnost, in njihova zavzetost za šolske spremembe sta v središču opredelitev vodenja pri učiteljih. Priprava bodočih učiteljev, da bodo na svojih šolah delovali kot vodje, lahko podpre splošna prizadevanja za izboljšanje šole. Zato je namen te študije raziskati razvoj vodenja pri učiteljih pred začetkom dela. V študiji je bila uporabljena kvalitativna metodologija za obravnavo: i) razumevanje vodenja pri učiteljih na strani učiteljev pred začetkom dela; ii) vloga začetnega izobraževanja učiteljev pri oblikovanju razumevanja vodenja pri učiteljih; iii) prispevek začetnega izobraževanja učiteljev k pripravljenosti bodočih učiteljev za izvajanje vodstvene vloge za izboljšanje šole. Študija je bila izvedena z bodočimi učitelji na vodilni ustanovi za začetno izobraževanje učiteljev na Kosovu. V štirih skupinskih intervjujih je sodelovalo 42 bodočih učiteljev iz vseh letnikov programa izobraževanja učiteljev osnovnih šol, da bi se poglobljeno pogovorili o ključnih elementih vodenja pri učiteljih in tako bolje razumeli, kako bodoči učitelji razumejo ta koncept in kako so pripravljeni opravljati vodstvene vloge. Kot analitični okvir za ugotavljanje razvoja vodenja pri učiteljih v začetnem izobraževanju učiteljev je bil uporabljen model, ki so ga zasnovali Snoek et al. (2019). Študija razkriva, da ni soglasja glede opredelitve vodenja pri učiteljih. Ugotovitve kažejo, da razumevanje vodenja pri učiteljih temelji na kontekstualno oblikovani viziji, kaj pomeni biti učitelj, kar ima za posledico ozek pogled na vodenje glede na raven posameznika in razreda. Študija ugotavlja, da ima začetno izobraževanje učiteljev ključno vlogo pri prispevanju k premiku konceptualizacije vodenja pri učiteljih, ki presega izolirane poglede na individualno in formalno vodenje. Ugotovitve imajo nujne posledice za zagotavljanje dobrih modelov začetnega izobraževanja učiteljev, ki podpirajo pripravo in pripravljenost bodočih učiteljev kot vodij za spopadanje z vse večjo kompleksnostjo učiteljskega poklica.

Ključne besede: vodenje pri učiteljih, začetno izobraževanje učiteljev, bodoči učitelji, izboljšanje šole

Introduction

Teacher leadership has gained immense interest in recent decades as a core component of pioneering educational leadership and school reform. This is generally because research has demonstrated the importance of the quality of educational leadership on the school and student achievement (Bush, 2010). Effective leadership is when authority is distributed among the personnel of the school, instead of centralising leadership in the persons formally holding the position of leaders. The idea of distributed leadership involving teachers as leaders within and beyond their classrooms is growing rapidly (Muijs & Harris, 2007; Katzenmeyer & Moller, 2009).

Teachers' great potential for change has been recognised in the literature, as they are considered to have "the capacity to lead the school via increasing teacher collaboration, spreading best practices, encouraging teacher professional learning, offering assistance with differentiation, and focusing on content-specific issues" (Wenner & Campbell, 2017, pp. 1–2). Teachers are persistently considered to be the crucial variable of change given the considerable impact they have on student achievement (Darling-Hammond, 2000). Fullan (1991) explains that "[e]ducational change depends on what teachers do and think – it is as simple and as complex as that" (p. 117).

Teacher leadership plays a significant role in improving educational practices (Muijs & Harris, 2005; Katzenmeyer & Moller, 2009). However, there is a lack of literature that investigates teacher leadership as a strategy for teacher professional development (Poekert, 2012). Initial teacher education programmes play a crucial role in preparing future teachers to take on leadership roles. Students' experiences during teacher education can help future teachers develop the knowledge, skills and attributes needed to be effective leaders. A strong link exists between teacher leadership and professional development, as professional development is both a source and a result of teacher leadership (Poekert, 2012). Effective professional development supports the professionalisation of teachers by enhancing their leadership abilities and enabling them to positively influence their colleagues' practice (Murphy, 2005).

The Kosovo teacher education context

Efforts to advance the quality of initial teacher education have been at the forefront of higher education and teacher education reforms in Kosovo for the past two decades (Kaçaniku, 2020a; Kaçaniku, 2022). In the pursuit of the necessary educational changes, Kosovo has aligned itself with European trends towards high-quality education (Saqipi, 2019). Numerous policy interventions

have also been employed at the national level to improve the standards required for the teaching profession to comply with the ever-increasing complexities of the teaching profession (Kaçaniku, 2020b; Kaçaniku, 2022; Saqipi, 2019).

According to the advanced standards, future teachers are expected to act as change agents and contribute beyond just teaching in the classroom, e.g., by engaging in continuous professional development and engaging professionally with colleagues, parents and community.

Mandated to prepare future teachers, the University of Prishtina's Faculty of Education has embarked on ongoing reforms to address the demands for new teacher professionalism (Saqipi, 2019). The Faculty of Education has committed to designing programmes at the bachelor and master's levels that include coursework and experiential learning opportunities to support future teachers in developing the required skills, knowledge and attributes in line with the standards of the teaching profession (Kaçaniku et al., 2019). Such interventions have arisen as a request from the Kosovo Accreditation Agency in efforts to improve the quality of study programmes. However, the Faculty of Education has taken a proactive role in improving the quality of programmes by serving as a beneficiary in several TEMPUS and ERASMUS+ projects for capacity building in higher education, which have enabled substantial programme reform (Kaçaniku, 2022). A significant aspect of the revised programmes is the cultivation of student-teacher generic competencies, which are recognised as crucial for developing adaptable future teachers. Nevertheless, teacher leadership is still considered a novel concept and has not directly been addressed as part of study programme reform.

Spurred by the idea that teacher leadership is an essential aspect of teacher education, the present study explores the views that pre-service teachers of the primary education programme hold regarding teacher leadership, as well as their readiness to enact teacher leadership as part of their future professional work.

Theoretical background

What is teacher leadership?

There is an equivocal understanding in the literature regarding the definition of teacher leadership. Some authors view teacher leadership from the perspective of influence and interaction, while others see it from the perspective of power and authority (Poekert, 2012). The common understanding among the descriptions of teacher leadership is that teacher leaders engage in leadership roles inside and outside the classroom in order to support the

enhancement of educational practices and school development. Harris and Muijs (2005) claim that teacher leadership relates to teachers' behaviours regarding school advancement, professional development and collaboration with colleagues, as well as their knowledge, skills and behaviours for improving teaching and learning. This suggests that teachers' leadership attitudes are important in elevating the quality of instruction taking place in schools and as such the quality of education delivery to students. York-Barr and Duke defined teacher leadership as: "the process by which teachers, individually or collectively, influence their colleagues, principals, and other members of school communities to improve teaching and learning practices with the aim of increased student learning and achievement" (2004, p. 287). Making a difference in school beyond teaching in the classroom involves an effort to enhance teaching practices and deepen subject matter expertise, providing support to colleagues, building professional relationships, being involved in school decision-making processes and challenging existing norms (Danielson 2006; Jacobs et al., 2014). According to Katyal and Evers (2004), teachers have a direct or indirect impact on other colleagues, students and the school community through their beliefs, values, expertise and actions. Teacher leadership is effective when teachers are accepting and respectful towards the opinions of others, and when they are positive, energetic and self-assured (Danielson, 2007; Katzenmeyer & Moller, 2009). Such qualities are critical, as effective leadership relies on the creation and preservation of cooperative and professional connections (Poekert, 2012).

Teacher leadership roles can be played in a formal or informal way. Formal teacher leaders are often assigned a particular role within the school by the principal, such as department chair, assigned mentor, curriculum specialist or leader of a study group (York-Barr & Duke, 2004). However, a pitfall of the formal role can be a lack of self-initiative among teachers, as they expect to receive tasks from the school management. Teachers who act as leaders informally, on the other hand, are characterised by an intrinsic motivation to undertake self-initiative for improving teaching and learning. For instance, informal leaders engage in the wider school community to improve teacher collaboration, support colleagues' professional development, share curriculum and instructional materials, conduct action research and provide informal mentoring (Danielson, 2007; Muijs & Harris, 2006). Teachers who engage in formal or informal leadership roles differ in the qualities they possess. Formal teacher leaders are characterised as committed, confident, well organised, communicative, empathetic, flexible and reflective. In addition to these qualities, informal leaders are described as deeply empathetic towards others, resulting in the creation of strong personal ties. Moreover, they are passionate about improving teaching

and learning practices by not only collaborating with other teachers, but also listening to student needs and modelling attentiveness to individual students needs in their classrooms (Gordon et al., 2020).

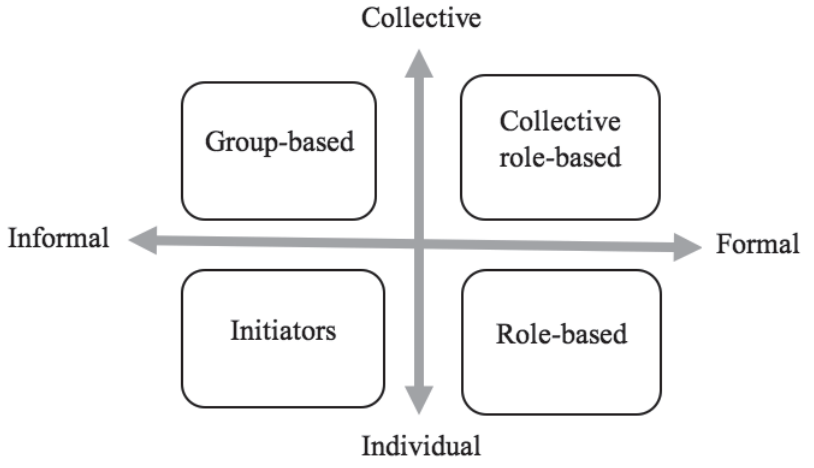
In addition to formal and informal roles of teacher leadership, the literature views teacher leadership from the perspective of individual role-based initiatives as opposed to a collective task-oriented approach. For instance, Snoek et al. (2019) delineate four types of teacher leadership in the lenses of formal/informal and individual/collective.

- Formal and individual teacher leadership is *a role-based approach*, where teachers are given positions by authorities within the school's organisational structure, such as coordinator, team leader or workgroup leader, which come with responsibilities for leading others.
- Formal and collective teacher leadership is *a collective role-based approach*, where teachers work together as part of a group with a specific role in order to exert influence over other individuals outside of the group. They usually work towards a specific goal, e.g., facilitating the professional growth of colleagues.
- Informal and individual teacher leadership is *an initiators approach*, where teacher leadership does not derive from an assigned formal leadership position, but rather arises from teachers taking the initiative to lead in order to contribute to the school's development, e.g., creating informal study circles.
- Informal and collective teacher leadership is *a group-based approach*, where teachers – either all of the teachers or several from the school – work together in initiatives that support school development. This type of teacher leadership empowers every teacher to exert an influence, while those with the most relevant expertise are allowed to lead the process, e.g., working together on innovative teaching strategies.

The present study is based on the framework presented by Snoek et al. (2019) in order to better understand where the conceptualisation of teacher leadership falls within these four types of leadership among pre-service teachers and how initial teacher education contributes to their understanding of and readiness for teacher leadership. Such findings provide significant information on the ways to move forward in preparing future teachers to embrace a broader understanding of leadership and to acquire a greater readiness to act as leaders.

Figure 1

Theoretical Framework of Teacher Leadership (adapted from Snoek et al., 2019).



Teacher leadership and initial teacher education

The teaching profession has become increasingly more complex in the last decades. The changing role of teachers has called for a new paradigm of the teaching profession that recognises the potential of teachers to lead for supporting school development. Yet, teachers are seldom seen as the driving force of change (Fullan, 2005). Hence, many teachers do not view themselves as leaders or recognise their role as the backbone of school reforms. Teachers' professional identity as teacher leaders can be nurtured during teacher preparation programmes, as this is when future teachers develop their professional identity. During initial teacher education programmes, through various experiences and interactions, students construct their views of who they want to be as professionals and their understandings of the role and position of teachers in society (Sachs, 2005). Students' values and beliefs about themselves as teachers are critical issues in teacher initial education programmes, because these views serve as the foundation of how they interpret and decide on issues regarding teaching and learning as future teachers (Bullough, 1997). This implies that teacher initial education programmes can contribute to the development of future teacher identity by devoting specific attention to the personal and professional growth of students. Embedding teacher leadership in teacher preparation programmes in which students develop their teacher identity supports their vision of the profession and their understanding of the impact of the profession on the development of school and student success. As Katzenmeyer

and Moller (2009) claim, teachers are confident to enact leadership roles when their personal philosophy to education is clear and well-shaped.

In addition to identity formation, teacher education programmes should equip future teachers with the required competencies to address the needs and challenges of the profession. Leadership is a vital part of the new paradigm of the teaching profession. Forster (1997) stated that "All teachers must be educational leaders in order to optimize the teaching and learning experiences for themselves and their students" (pp. 82–83). This means that future teachers should be supported and encouraged to become leaders in order for them to fulfil their roles and responsibilities as professionals. In order for teachers to act as leaders, they need to have a sense of motivation and confidence to undertake positive changes within school (Muijs & Harris, 2006). Teacher preparation programmes can play a crucial role in nurturing confidence and willingness in future teachers to act as change agents, thus breaking the cultural norms of the teaching profession that view the teacher's role predominantly situated within the classroom borders. In a study conducted by Oppi et al. (2020), participants mentioned intrinsic motivation as one of the main characteristics of teacher leaders, as teacher leaders should have a force that stems from within and pushes them to do things better. Students' opportunities for professional development during teacher preparation programmes can support pre-service teachers to broaden their approach towards leadership and expand their understanding of the opportunities they have to lead. Other qualities of teacher leaders include self-regulation skills, such as planning, collaboration and communication, as well as empathy and consideration for others (Oppi et al., 2020). By designing curricular experiences that engage students in leadership roles and responsibilities, future teachers develop a professional identity that incorporates leadership, as well as the skills, attributes and qualities required to take on leadership roles within the classroom, the school and the broader education community. As argued by Forster (1997), "Teacher education institutions carry a particular responsibility by preparing teachers not only to understand and accept a leadership role, but to be able to effectively function in that capacity" (pp. 88–93).

The literature reveals a gap in defining teacher leadership, with varying perspectives on its nature. While definitions differ, teacher leaders are generally seen as influencing educational practices inside and outside the classroom. Teacher leadership can take formal or informal forms, each associated with distinct qualities. Additionally, the literature distinguishes between individual and collective approaches to teacher leadership (Gordon et al., 2020; Oppi et al., 2020; Snoek et al., 2019). In order to address this gap, it is essential to investigate the concept of teacher leadership in initial teacher education programmes

by exploring the process of shaping future teachers' professional identity and equipping them with the necessary competencies to act as leaders within education. Motivated by a belief that teacher leadership plays a crucial role in initial teacher education, the present research investigates the perspectives of student-teachers regarding teacher leadership and their preparedness to embrace teacher leadership in their future careers.

The purpose of the study is to explore pre-service teacher leadership development by answering the following research questions:

RQ1: How do pre-service teachers conceptualise teacher leadership?

RQ2: How does initial teacher education shape the understanding of teacher leadership for school improvement?

RQ3: How does initial teacher education contribute to pre-service teachers' readiness for exercising leadership roles for school improvement?

Methods

The study is situated within a qualitative research paradigm. Qualitative research allows participants' opinions to be flexibly represented and prompts issues that emerge beyond participants' actions and behaviours that exist beneath their consciousness (Creswell & Creswell, 2018).

Sampling, instruments and procedure

The study was conducted with pre-service teachers in the largest initial teacher education institution in Kosovo during the spring semester of the 2022/2023 academic year. Purposive sampling was adopted as a sampling strategy (Cohen et al., 2018). The goal was to ensure inclusive participation of student-teachers from all study years of the Primary Teacher Education programme (1st to 4th-year student-teachers) in group interviews. A total of 42 pre-service teachers from all years of the Primary Teacher Education programme participated in group interviews. In order to ensure an equal opportunity for student-teacher participation in the group interviews, an email was sent out to student-teachers from all study years of the Primary Teacher Education programme with a detailed explanation of the study's purpose. Student-teachers were invited to fill out a participation form that enabled their selection to participate in group interview discussions on a first-come-first-served basis. This selection method was based on the premise that students who filled out the participation form showed an interest in engaging further with the topic of teacher leadership. See the table below for more information on the sample.

Table 1
Sample distribution

Primary Teacher Education students	Number of participants
Year I	10
Year II	10
Year III	10
Year IV	12
TOTAL	**42**

Since the topic of teacher leadership is fairly new in the Kosovar context of teacher education, group interviews were conducted to enable the researcher to acquire valuable insight into the interpretation of the discussion, as the group members stimulate each other to engage in the discussion (see: Frey & Fontana, 1991). A typical group interview involves 10–15 participants (Cohen et al., 2018), and we invited at least 10 student-teachers per group as participants.

In order to capture a range of teacher leadership conceptualisations, the group interview protocol was developed based on Snoek et al.'s (2019) theoretical framework of teacher leadership. The protocol reflected the goal of initiating discussion on how pre-service teachers conceptualise teacher leadership by linking this to the role of initial teacher education in fostering this concept in teaching profession dimensions. Furthermore, the group interview protocol triggered a discussion on understanding the contribution of initial teacher education to pre-service teachers' readiness for exercising leadership roles for school improvement.

Quality criteria for qualitative research

The study adopted criteria for assessing the trustworthiness of qualitative inquiries in order to address validity, generalisability, reliability and objectivity. Researchers who subscribe to the constructivist worldview (including the qualitative, interpretive approach) have developed the following concepts in response to addressing the quality criteria relevant for assessing the trustworthiness of qualitative inquiries in qualitative research: *credibility*, *transferability*, *dependability* and *confirmability* (Lincoln & Guba, 1985).

In our research, we addressed the issue of *credibility* in the following ways: (i) by operationalising concepts related to teacher leadership clearly in the data collection, intended to allow respondents to confirm the results; (ii) by random sampling, since the respondents filled out the participation form on a voluntary basis and 'secured' their spots in the group interviews on a first-come-first-served

basis; and (iii) by offering a detailed description of the phenomena being studied in the email invitation to the participants, as well as during the group interviews. Although there is no intention to address external validity/generalisability in qualitative research, our research focused on ensuring *transferability* of results by: (i) allowing other researchers the opportunity to compare context similarities and differences; and (ii) developing a modest basis for achieving theoretical generalisations as the key advantage of conducting qualitative research. Lincoln and Guba (1985) emphasise that there is a close association between *dependability* and *confirmability*. In our study, we tackled these two essential benchmarks for conducting qualitative research by offering a comprehensive description of our research methodology and the specific actions taken, in order to facilitate the reader's comprehension of the execution of each step.

Data analysis

Data were analysed using a hybrid thematic approach (see: Fereday & Muir-Cochrane, 2006) by combining a deductive template for data analysis (Crabtree & Miller, 1999) and a data-driven inductive approach (Boyatzis, 1998). Deductive thematic analysis was done using the theoretical framework of teacher leadership from Snoek et al. (2019) (see *Figure 1*), while inductive thematic analysis relied on the student-teachers' perspectives and was purely data driven. This combined approach of data analysis was used to ensure an inclusive view of the data and offered rich insights into the students' understanding of teacher leadership and their readiness to exercise a leadership stance towards school improvement.

Results

The study yields evidence about pre-services teachers' understanding of teacher leadership. The findings are organised in accordance with the research questions regarding the conceptualisation of teacher leadership, the contribution of the initial teacher education programme in shaping the understanding of the concept, and the pre-services teachers' readiness to act as leaders based on their perceptions. The results are categorised following a theoretical framework that considers various forms and approaches of teacher leadership depending on teachers' engagement activities. The analysis of the data generated central themes that dominated the pre-service teachers' conceptualisation of teacher leadership and the key insights delineating the understanding of the role of teacher leaders in school development. An overview of the findings is presented in *Table 2* and discussed throughout this section.

Table 2
Overview of the findings

Forms of Teacher Leadership	Approaches to Teacher Leadership	Central Themes	Key Insights
Formal and individual leadership	**Role-based approach**	Top-down outlook of leadership	– School principal considered as the key person responsible for school leadership – Formal authority exercised by the school principal enables them to initiate change – Guidance and orders to initiate activities come from a top-down leadership approach
		Teacher leader as an authority figure	– Teacher leadership as a formal position in the school hierarchy – Teacher exercises authority and has influence over others – A formal position to initiate activities and foster change
		Teacher as a "successful classroom leader"	– A teacher who is in charge of the classroom – Capable of providing effective teaching to students – Focused on student achievement – Capable of fulfilling curriculum requirements – Student-centred teaching approach – Contemporary teaching methodologies – Incisive teacher – Supportive classroom environment for successful learning – Effective classroom management – Cooperation with parents
Formal and collective leadership	**Collective role-based approach**	Missing link between teachers as individuals and school leadership structure	– Teacher leadership as confined to classroom roles – Lack of understanding regarding school leadership scope – Lack of guidance to participate in school management activities – Lack of exposure to broad views of teacher and school leadership
Informal and individual	**Initiators approach**	Teacher leader as a change agent	– Brings new ideas and practices – Identifies gaps and strives for continuous professional development – Reflects constantly and aims for improvement – Initiating school and community-level activities – Reflects creativity
		Teacher leader as a supporter of collegiality	– Teachers share good experiences and practices with their peers – Teachers help colleagues to develop professionally – Support colleagues to find appropriate solutions for pressing problems – Invest in developing relationships with colleagues inside and outside school

Forms of Teacher Leadership	Approaches to Teacher Leadership	Central Themes	Key Insights
Informal and collective	**Group-based approach**	Teachers as contributors to school development	– Teachers participate in different school development projects voluntary – Teachers understand the school vision and engage in group efforts to support school improvement – Teachers understand school culture and school needs in order to contribute to different areas of improvement

Conceptualisation of teacher leadership and the contribution of initial teacher education to the understanding of teacher leadership

The study attempted to ascertain how pre-service teachers understand teacher leadership. The predominant understanding among the interviewees situates teacher leader in a formal and individual leadership stance depicting a top-down view on leadership and portraying the teacher leader as an authority figure who is successful mainly within the classroom borders. The prevalent view that teacher leadership relates to formal authority, whereby teachers are expected to fulfil requirements that derive from formal roles, positions the pre-services' understanding of teacher leadership within the *role-based approach.*

The pre-service teachers' understanding of the concept of teacher leadership illustrates their view of leadership in education, which is associated with the *top-down outlook of leadership* in school management. When discussing leadership, the primary figure responsible for school leadership that came into the participants' minds was the school principal. The pre-service teachers mainly regard the school principal as the critical figure in facilitating school improvement and driving change, as guidance and directives to initiate activities are provided by those in higher levels of authority:

> The teacher leader is someone who helps other individuals within and outside school to develop professional knowledge. From my previous experience, this person in my school was the school principal, who always dealt with and managed the school's affairs. (Participant 4, Year 1)
>
> The first thing that comes to my mind when we discuss leadership is the position of school principal. (Participant 4, Year 2)

The pre-service teachers portrayed the teacher leader as an *authority figure* having a formal position that allows them to exercise authority and influence others. The formal position of the teacher leader within the school hierarchy grants teacher leaders the ability to initiate activities that drive progress and school improvement:

> I think that teacher leadership is more of a formal role […] if I can say it refers to a teacher who has formal authority in the school, which comes from the higher position a teacher has in the leadership hierarchy. (Participant 4, Year 3)
>
> I think that in a formal role, the teacher leader will have more influence over others, i.e., others will listen and follow him/her in whatever actions the teacher leader initiates. In an informal role, others might not necessarily listen to the teacher leader […] if for example the teacher provides some ideas for activities to be implemented in the school, if others like or agree with the idea they will follow […] if not, then they won't. (Participant 2, Year 1)

The pre-service teachers stipulate that the teacher leader is a *successful classroom leader* capable of effectively fulfilling the curriculum requirements and adept at providing effective teaching that conforms with contemporary teaching strategies for addressing students' individual needs, as well as being an inclusive teacher who fosters a supportive classroom environment to facilitate successful learning:

> The teacher leader is an inclusive teacher who acts as such both inside and outside the classroom context. The teacher leader is a contemporary teacher who analyses the requirements specified in the curriculum framework and is able to translate them into teaching practice. (Participant 3, Year 2)
>
> The teacher leader is someone who is capable of fulfilling the curriculum requirements effectively, e.g., using student-centred teaching approaches that put the individual needs of students at the forefront, so students can benefit from the teaching that takes place in the classroom. (Participant 3, Year 1)

The findings indicate that the pre-service teachers' understanding of teacher leadership as a *collective role-based approach*, in which teachers work as a group with a specific role to exert influence over other individuals outside the group, is only sporadically mentioned. For example, one participant mentioned that:

> [...] the teacher leader can get involved in professional *activas* (departments) of schools and contribute to the teaching and school system. (Participant 5, Year 4)

In the Kosovo education system, professional *activas* are professional communities of two or more teachers of the same/similar subject areas who

share knowledge and practices among themselves in order to contribute to the enhanced quality of teaching and learning.

The *missing link between teachers as individuals and the school leadership structure* is identified by the pre-service teachers' prevalent view of the teacher leader's influence being limited to the classroom role. This suggests that the respondents may not be fully aware of the scope of school leadership, that they lack a comprehensive understanding of the roles and responsibilities of school leadership, and that they might not be fully aware of the broader leadership opportunities available to them within the school system and how they can be more involved in school management.

The participants in the study made a distinction between the teacher's involvement as a leader who relates to their activities that are part of the expected teachers' workload and teachers' involvement in informal activities with students. Such a distinction indicates that the pre-service teachers have a moderate understanding of teacher leadership as an *initiators approach* in which teachers have an informal and individual role as leaders. For instance, teachers' informal involvement on a voluntary basis in organising school-level activities such as awareness raising activities regarding important societal issues:

> [...] An example is when a teacher takes the initiative to organise activities related to students' awareness of environment protection. (Participant 4, Year 2)

The pre-service teachers view the teacher leader *as a change agent* in the sense that teacher leaders are innovators who bring new ideas and practices to their work, introduce innovative solutions to problems, initiate school-level activities that engage students and motivate them to learn, and reflect continuously on identifying their needs for professional development. However, this theme was mainly discussed within the framework of individual and classroom-level interventions, and the participants failed to more thoroughly recognise teacher leadership beyond classroom boundaries.

> The teacher leader accepts his/her challenges and knowledge gaps and always strives to improve him/herself through continuous professional development activities [...]. They are more prone to taking risks and are fully committed to their responsibilities as teachers. (Participant 1, Year 4)

In addition, within the initiators approach to teacher leadership, the pre-service teachers portray the teacher leader as a *supporter of collegiality*, as teacher leaders are viewed as teachers who play a critical role in creating a positive and collaborative school culture in which teachers are willing to share

experiences, practices and knowledge with one another. As mentioned by the participants, the teacher leader helps colleagues to develop professionally by offering support, guidance and feedback, and by investing in developing collegial relationships inside and outside the school:

> Teacher leaders can contribute to school development by sharing good practices and experiences with their colleagues – if they have implemented a teaching practice/activity during their lesson that has turned out to be successful and well received (perceived as attractive) by students – in order for their colleagues to also implement good practices for their students to learn more effectively. (Participant 3, Year 1)
>
> I will initiate collaborations not only within the classroom and school context, but with colleagues beyond the school 'boundaries'. (Participant 9, Year 4)
>
> Teacher leaders should collaborate with all of their colleagues (teacher colleagues and other school staff, as well as with students and parents) and be willing to listen to others' ideas, concerns. Such teachers are willing to invest in collegial collaboration even outside school [...] by inviting colleagues to social activities outside working hours. This helps colleagues to connect at a deeper level and find commonalities that enhance their professional connection. (Participant 6, Year 1)

Finally, the interviewees depict the role of the teacher leader within the *group-based approach* by stipulating that teacher leaders are *contributors to school development.* In this role, teacher leaders should understand the school vision and work collaboratively with others to support school development:

> [...] One concrete example is when the teacher and the school principal collaborate in preparing an application for a grant for school improvement purposes. (Participant 4, Year 2)
>
> I think school development is a continuous process. In order to contribute to school development, we need to have a vision [...] we need to know where we want the school to be. But in order to do this I cannot do it alone, I can contribute as part of a team, but I consider that the involvement of other colleagues and the school principal is necessary to have a common understanding of where we are as a school and where we want to be, and afterwards decide on the activities that we need to implement in order to achieve that goal. (Participant 5, Year 3)

The pre-service teachers have varying opinions on the contribution of the initial teacher education programme to the formation of their

conceptualisation of teacher leadership. The participants from the first and second year of study tend to have a more positive view on the effectiveness of the programme to equip them with knowledge regarding the roles and responsibilities of the teaching profession through various courses and assignments, as well as to develop skills such as research skills and time management, which are viewed as crucial for their work as professionals.

> The study programme exposed us to the content of the curriculum, its purpose and the role of teachers in implementing the curriculum. This has helped us to broaden our view and perspective on the role of teachers in the education system. (Participant 2, Year 1)
>
> Last year, we had a task to analyse the national curriculum framework and I remember that when we analysed the competencies we needed to develop in students that was the first understanding I gained of what kind of teacher I would like to be. The development of such competencies has helped me understand how to become a teacher leader in the future. (Participant 3, Year 2)

The participants from the third year of study reveal mixed views on the study programme's focus on teacher leadership. Some of the participants claimed that, during their three years of study, they lacked opportunities to discuss the concept of the teacher leader specifically, but that the programme had offered them opportunities to expose themselves to leadership practices mainly during in-school placement and practical assignments. Others claimed to have heard about the concept but lacked an opportunity during their studies to gain a more comprehensive understanding of it. The participants from the fourth year of study had more dilemmas regarding the study programme's focus on teacher leadership, which limited their views on the role of teacher leadership in school improvement.

> We did not specifically discuss the concept, but during our assignments I think we were exposed to leadership and practised it without maybe realising. For example, during in-school placement, we were asked or supposed to lead the class or an activity and then we were asked to reflect on how we implemented it to understand what to do better next time. (Participant 3, Year 3)
>
> Many courses focus on general aspects of the teaching profession and have failed to enable us to dig deeper into different problems and explore potential interventions and solutions. I only know what a teacher leader is in theory! (Participant 9, Year 4)

Readiness for exercising leadership roles

Regarding the pre-service teachers' readiness to exercise leadership for school improvement, the findings revealed the main competencies that the participants consider to be essential for the teacher leader. Personal characteristics – such as positive attitudes towards the profession, work ethics, being inspiring, reflective, empathetic, professional, motivating, responsible, enthusiastic and creative, and being a role model for students – were deemed as characteristics of the teacher leader. The participants considered that the initial teacher education programme had enabled them to shape their professional identity and their personal philosophy to education in line with the identified characteristics of the teacher leader:

> I think that, in this changing world, there is a general understanding that being a teacher does not only mean that we go to class and teach. [...] Teachers are expected to engage in continuous professional development in order to gain new knowledge and skills that prepare them to deal with a range of demands and to address students' needs. This is the basis that enables teachers to develop as leaders. (Participant 2, Year 2)

The participants also emphasised the generic skills that characterise the teacher leader, such as communication skills, organisational skills and research skills, to name a few. Generally, the participants considered that the programme had helped them to develop such skills, thus making them feel more confident to act as leaders in the future:

> I think that the programme has helped me develop some of the generic skills. For example, I learned to be organised and manage my time more effectively, and to be more responsible during group assignments. Assignments also helped me be more reflective in terms of analysing things and listening to others' views on a certain topic. (Participant 3, Year 1)

Lastly, the pre-service teachers mentioned that the teacher leader should embrace democratic values, such as diversity and inclusion, and respect for all students. They consider that they are ready to demonstrate and promote such values in their schools:

> I would try to create an inclusive school and support students with special needs. In this regard, I would organise awareness-raising activities, involving the community as well, to emphasise the importance of the inclusive school. (Participant 2, Year 3)

The findings also show a reluctance in some participants to exercise leadership, as they consider they lacked opportunities for hands-on experience and

practical work during their studies. This view prevailed mainly among third- and fourth-year students, who considered that they need more time and experience to be able to fully understand the multifaceted demands of the teaching profession. The pre-service teachers positioned teacher leadership within the role-based approach, the initiators approach and the group-based approach, while the collective-role based approach is missing in their understanding of the concept.

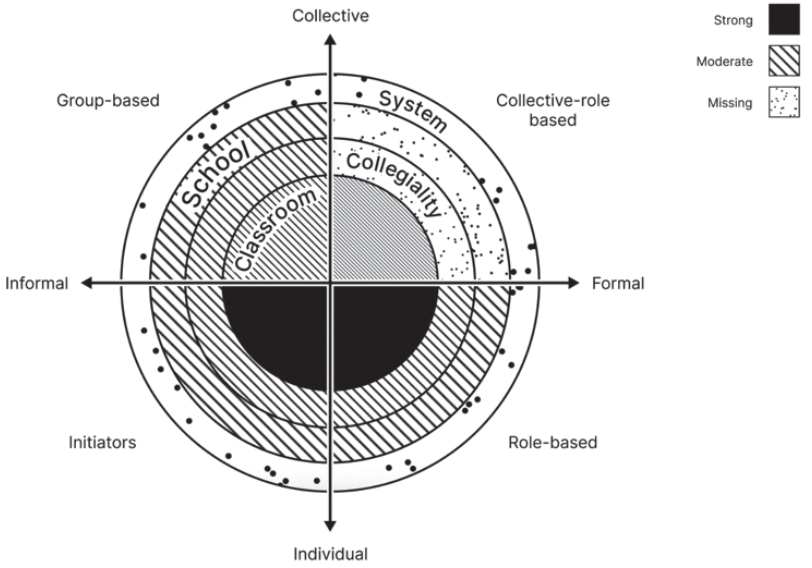
Discussion

The present study provides evidence about pre-service teachers' conceptualisation of teacher leadership, the contribution of initial teacher education in developing an understanding of teacher leadership, and the readiness of future teachers to act as leaders. The findings regarding the conceptualisation of teacher leadership within the Snoek et al. (2019) model of different forms of teacher leadership reveal that there is no consensus on the definition of teacher leadership, which is consistent with previous findings in the literature.

Drawing on Bronfenbrenner's ecological systems model (1979), our findings indicate that shaping teacher leadership in initial teacher education is highly context-based. This means that initial teacher education influences the understanding of teacher leadership based on a contextually drawn vision of what it means to be a teacher. Although teacher leadership has been discussed as a cross-cutting theme in initial teacher education, pre-service teachers embrace a narrow view of teacher leadership towards individual and classroom-level leadership roles. However, other dimensions of teacher leadership at the collegial, school and system levels are marginally represented or missing. Hence, our findings support the development of a framework (see *Figure 2*) for understanding teacher leadership within such contextual dynamics whereby the role of teacher leader is confined within classroom borders, while teachers' contribution to educational leadership is practically lacking at the school and system levels. The framework connects the models of Bronfenbrenner (1979) and Snoek et al. (2019) to offer a deeper understanding of context-based teacher leadership development towards shaping future teacher professionalism.

Figure 2

Framework for understanding context-based teacher leadership development



At the classroom level, the predominant exemplification of the teacher leader relates to the formal and individual role of teachers bounded mainly within the classroom borders. Similar to other research (see: Brooks, 2004), the pre-service teachers interviewed in the present study generally believed that their leadership responsibilities were limited to the classroom context, as they considered that the role of the teacher leader is primarily to accomplish the official requirements, responsibilities and duties of the profession. The limited view of teacher leadership centred on fulfilling curriculum requirements indicates an absence of understanding of the broader leadership opportunities available to teachers in the school and education system. This prevalent view among the future teachers interviewed could be due to their general understanding of the hierarchical interviewed of leadership, which positions teachers' work primarily in the classroom. The formal structure of school leadership is widespread among schools in Kosovo (see: Buleshkaj & Koren, 2022). Therefore, pre-service teachers lack exposure to different leadership models during their in-school placement, which could have contributed to their limited view of teacher leadership.

At the collegial level, the participants in the study demonstrated an understanding of the distinctive role of the teacher leader in formal and informal positions by mentioning activities that could be done individually or collectively

in formal and informal roles (York-Barr & Duke, 2004) at the school as well as the community level. They mentioned the role of the teacher leader in establishing a positive climate within the school and in collaborating with other colleagues to advance teaching practices for successful student learning. Although aware of the importance of collegial collaboration, the nature of collaboration is essentially to serve the purposes of classroom change. This means that exercising leadership through collegiality entails sharing good practices and experiences that enhance the quality of teaching and learning.

At the school level, collaboration for school improvements is partly discussed. Teacher leadership is viewed as limited to collaboration for student achievement, which in turn could support overall school development. Nevertheless, collaboration to support the vision of the school and development beyond the classroom is missing in the pre-service teachers' delineation of the role of the teacher leader for school development, which is similar to other findings in the literature (see: Oppi et al., 2020). Participating in school change and improvement initiatives is one of the dimensions of teacher leadership practice identified by York-Barr and Duke (2004), encompassing teachers taking part in decision-making within school, working with colleagues and conducting action research for school change. However, teachers' engagement of this nature was absent in the discussion of teacher leaders' roles with the participants of the present study, which further supports their isolated view of the scope of teacher leadership.

At the system level, teacher leadership for supporting education system changes is missing. How students construct their view of their future selves as teacher leaders does not support them in acting as change agents at the system level, but rather in exerting influence through their classroom practices. This means that the initial teacher education programme has shaped a pre-service teacher philosophy to education (see: Sachs, 2005; Katzenmeyer & Moller, 2009) by introducing students to the core professional tasks and responsibilities of the teaching profession confined within the classroom setting. These findings indicate that initial teacher education programmes should incorporate a more explicit and multifaceted approach to teacher leadership in order to broaden pre-service teachers' conceptualisation of the role of teachers in contributing to system change.

In addition to developing an understanding of teacher leadership, the initial teacher education programme should support students with developing the required competencies to act as leaders. As many programmes may not be suitable for pre-service teachers, Bond (2011) suggests that the experience of in-school practice provides opportunities for students to develop leadership skills.

In the present study, the participants mentioned the opportunities they had during their study years to develop generic skills, particularly competencies like communication and research skills during practical assignments, or opportunities to exercise leadership by leading a class during in-school practice. This demonstrates the importance of exposing students to various experiential opportunities to help them develop their skills and have a better understanding of their leadership role in a school setting.

Conclusion

The present study concludes that initial teacher education has a critical role in contributing to shifting the conceptualisation of teacher leadership beyond the narrow sense of individual and formal leadership. Teacher leadership should be placed within a wider context of teacher professionalism so that teacher leadership for school improvement is understood as part of the teaching profession. Pre-service teachers should be practically exposed to leadership situations in order to broadly understand the scope of teacher leadership, develop teacher leadership competencies and enhance their readiness to exercise leadership roles. Therefore, embedding teacher leadership as part of initial teacher education study programmes is imperative for cultivating future teacher leaders for school and education system improvement.

Limitations and future research

The study has some limitations, both methodological and in terms of content. Regarding content limitations, the study deals with pre-service teacher leadership conceptualisations shaped through the leading initial teacher education institution in Kosovo. Teacher leadership is operationalised using Snoek et al.'s (2019) theoretical framework of teacher leadership in order to capture a range of teacher leadership conceptualisations. In order to ensure the teacher-orientation in the concept investigation, however, school leadership and school improvement are not included. Regarding methodological limitations, the study is context-situated and offers a focused view of developing pre-service teacher leadership. Future studies could focus on in-service teacher leadership to understand how teacher experience and continuous professional development shape the leadership stance. Such studies could contribute to understanding the required interventions in initial teacher education programmes in order to fully incorporate the teacher leadership dimension.

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Between Academia and School: Habitus Reflexivity as One Way of Dealing with the Theory-Practice Tension in Teacher Education

Susanne Kink-Hampersberger*[1], Lisa Scheer[2] and Iris Mendel[3]

Teacher education's primary goal is to train prospective teachers, which differs from study programmes, such as philosophy or mathematics, that do not cater to defined professions. This traditional understanding of the teaching profession becomes apparent when students ask: 'How is this content, topic, method, task, or question relevant to school work?' It is also reflected in the inclusion of practical school training in teacher education curricula. In Austria's teacher training, these practical elements are accompanied by theoretical and methodological teaching foundations. However, students often question the applicability of theoretical knowledge to the teaching profession, which creates tension between the academic and pedagogical orientations. This paper discusses these very theory-practice tensions in teacher education based on findings from the project Habitus. Power.Education, which involved student teachers at an Austrian university. We argue that teacher training at universities is neither merely a place for producing a future workforce nor a self-growth space without purpose. Teacher training, rather, combines both (sometimes ambivalent) elements: education in its broadest sense and professional training. Using our empirical material, we show that the theory-praxis gap manifests in the tension between academic and pedagogical orientation. To address and mediate this tension, we propose the concept of habitus reflexivity. Promoting such a form of reflexivity among students makes it possible to bridge the gap between the different logics of university and school. Furthermore, it helps to comprehend inequality and power imbalances in the education system and develop agency, which is essential for navigating the ever-changing and complex world of modern schools.

Keywords: habitus reflexivity, Austrian teacher education, theory-practice tension, inequality

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Med akademijo in šolo: refleksija o habitusu kot eden izmed načinov reševanja napetosti med teorijo in prakso v izobraževanju učiteljev

Susanne Kink-Hampersberger, Lisa Scheer in Iris Mendel

Glavni cilj izobraževanja učiteljev je usposabljanje bodočih učiteljev, kar se razlikuje od študijskih programov, kot je filozofija ali matematika, ki niso namenjeni enemu določenemu poklicu. To tradicionalno razumevanje učiteljskega poklica se pokaže, ko študentje vprašajo, kako je ta vsebina, tema, metoda, naloga ali vprašanje pomembno za delo v šoli«. To se kaže tudi v vključevanju praktičnega usposabljanja v šolah v programe izobraževanja učiteljev. V avstrijskem izobraževanju učiteljev te praktične elemente spremljajo teoretične in metodološke osnove poučevanja. Študentje se pogosto sprašujejo o uporabnosti teoretičnega znanja v učiteljskem poklicu, kar ustvarja napetost med akademsko in pedagoško usmeritvijo. Ta članek obravnava prav te napetosti med teorijo in prakso v izobraževanju učiteljev na podlagi ugotovitev projekta Habitus.Power.Education, v katerem so sodelovali študentje, bodoči učitelji na avstrijski univerzi. Trdimo, da usposabljanje učiteljev na univerzah ni le prostor za pripravo prihodnje delovne sile niti prostor za samorast brez namena. Usposabljanje učiteljev prej združuje oba (včasih ambivalentna) elementa: izobraževanje v najširšem smislu in strokovno usposabljanje. Na podlagi empiričnega gradiva pokažemo, da se razkorak med teorijo in prakso kaže v napetosti med akademsko in pedagoško usmeritvijo. Za obravnavo in posredovanje te napetosti predlagamo koncept refleksije o habitusu. Spodbujanje takšne oblike refleksije med študenti omogoča premostitev vrzeli med različnimi logikami univerze in šole. Poleg tega pomaga razumeti neenakost in neravnovesje moči v izobraževalnem sistemu ter razviti sposobnost samostojnega odločanja, ki je ključno za krmarjenje v nenehno spreminjajočem se in zapletenem svetu sodobnih šol.

Ključne besede: refleksija o habitusu, avstrijsko izobraževanje učiteljev, napetost med teorijo in prakso, neenakost

Introduction

Theory, Practice and Habitus Reflexivity in Teacher Education in Austria

Since the 1990s, the Bologna Process has promoted a far-reaching transformation of universities into entrepreneurial units (e.g., Hark & Hofbauer, 2018). Consequently, students are increasingly seen as customers who receive a service, namely education and/or professional qualification. In this logic, higher education teachers support students in acquiring competences or applicable subject-specific and methodological knowledge aiming at their 'employability'. Therefore, it is unsurprising that the dual function of universities – academic education on the one hand and professional qualification for a specific profession on the other – has been debated for some time (e.g., Demirović, 2015, p. 92). Such an ongoing debate has been the case for teacher training, where one of the discussions has centred on the theory-practice relationship (e.g., Weniger, 1957; Bollnow, 1978; Drerup & Terhart, 1990; Korthagen, 2010; Makrinus, 2012; Meseth, 2016; for other fields like pedagogy, see Ermenc et al., 2015).

While studies such as philosophy, sociology, mathematics, or geography do not pursue qualification for a specific profession, teacher training is mainly intended to prepare aspiring teachers and thus aims to produce future workers for a defined professional field. Scheid and Wenzl (2020, p. 5), amongst others, highlight that teacher education has always been under pressure to prepare students for their professional practice. As such, it cannot solely focus on theoretical (subject) knowledge but must also consider the demands of school practice. The tension between academic standards and practical demands is a constant challenge in teacher training, as it aims to meet both expectations. On the one hand, there is the need for education to be useful for professionalisation and the daily work in school. On the other, this education should be based on an academic foundation (e.g., Meseth & Proske, 2018, p. 20f.). This relationship between the scientific foundation and professional practice is also reflected in the design of the curricula of Austrian teacher training programmes. Almost ten years ago, on 1 October 2015, a new curriculum, the so-called Teacher Education NEW,[4] was introduced into the Austrian teacher training programme. Science and research

4 The teacher training in Austria is organised in five groups. Each group is a merger of different universities and university colleges of teacher education. The University of Graz, where we did our research, is part of the "Entwicklungsverbund Süd-Ost (ESVO)", the merger of four universities (University of Graz, The University of Music and Performing Arts Graz, the University of Technology Graz and the University of Klagenfurt) and four colleges of teacher education (the University College of Teacher Education Styria, the Private University College of Teacher Education Burgenland, the University College of Teacher Education Carinthia and the Private University College of Teacher Education Graz).

were identified as core elements of the new teacher education in the nationwide recommendations of an expert group (Härtel et al., 2010, p. 75). As a result, the current programme includes basic courses in educational science (in German Bildungswissenschaftliche Grundlagen, BWG) in addition to school practice and subject didactics. This means that students now learn the basics of educational and social theory, teaching and learning, school development, methodology, and research practice. Developing critical thinking and (self-)reflection skills and methods for researching one's teaching activities are also essential components of these courses. This part of the curriculum leads to two main questions which we took on and addressed in our research project: How do students perceive and cope with content that cannot be directly translated into school practice? Moreover, how should university lecturers deal with students' questions regarding the relevance of course content to their everyday school work?

The Methodology and Theory of Habitus.Power.Education

Our paper is based on findings from the project Habitus.Power.Education – Transformation through Reflection (in German: Habitus.Macht.Bildung – Transformation durch Reflexion). This project was funded by the Federal Ministry of Education, Science and Research (BMBWF) via the performance agreement with the University of Graz from mid-2019 to the end of 2021 and was located at the Institute of Education Research and Teacher Education. Our research aim was manifold: first, we were interested in students' experiences and their awareness of social inequality in educational institutions. Second, we also wanted to encourage students to reflect on power relations in pedagogical relationships. Third, we aimed to explore how student experiences of social inequality in educational institutions can be reflexively collected and, fourth, what methodological tools can be used to support habitus-reflexive teaching at schools and universities.

By drawing on our empirical findings, we demonstrate that the theory-practice tension manifests itself between the academic and pedagogical orientations. Thus, we ask whether habitus reflexivity can close the divide between the different logics of university and school. By employing the concept of habitus reflexivity, we are referring, on the one hand, to Bourdieu's understanding of habitus as 'a subjective but not individual system of internalised structures, schemes of perception, conception, and action common to all members of the same group or class' (Bourdieu, 1977, p.86). On the other hand, in our theoretical framework, we allude to reflexivity as an attribute and characteristic in distinction to reflection as an activity. Reflexivity, as described by Modaschl (2010, p. 4), entails the

ability to abstain from one's own egocentric perspective, allowing an understanding of alternative vantage points from which a different perspective on the subject may arise. Habitus reflexivity in our understanding, therefore, means not only reflecting one's habitus with regard to social relations of inequality. By reflecting and becoming aware of their habitus, students also develop important skills for their professionalisation. (Future) teachers, in particular, benefit from engaging with their habitus and the associated patterns of perception and acting, two aspects which are unconsciously linked to the assessment of children and adolescents as 'gifted', 'committed', 'untalented', 'lazy', and similar. Such assessments and attributions also influence the support of pupils and students (Bourdieu & Passeron, 1971). Because the habitus is conceptualised as a link between individuals and social structure, habitus reflexivity helps to comprehend inequality and power relations in educational institutions, such as schools and universities, and in society. Its development supports agency, which is essential for navigating the ever-changing and complex world of modern schools.

Method

In February 2018, we[5] started our project with the aim of encouraging students' critical thinking and enhancing the awareness of social inequality in teacher education. We decided to use a course called 'Introduction to Educational Research' to shed a broader light on the topic of habitus reflexivity and its development. This course is part of the BA programme 'General Secondary Level Teacher Training' and is recommended to be taken during the fourth or the fifth semester (out of eight). It is assigned to the module BWB/Educational Theory and Society, in which students learn to view educational processes from a socio-critical perspective, become familiar with approaches to the theory-practice relationship, learn about its relevance for educational practical fields, and become acquainted with research methods and their potential in pedagogical practice. In addition to the courses, the module also includes internships in schools.

Participants

One hundred and twenty students, all in the Bachelor programme of Teacher Education at the time, participated in our pilot project between the 2018 summer semester and the 2019 summer semester, during which we mainly generated our empirical material; 59% of the participants were female, which is slightly

5 Katarina Froebus, Klara Strausz, Veronika Wöhrer and Julia Schubatzky were part of the project team in addition to the authors; Kathrin Otrel-Cass was the project leader.

below the average in the BA programmes[6]. As part of the curriculum, the course 'Introduction to Educational Research' is typically scheduled in the fourth semester of the programme. However, our participants, on average, were in their seventh semester. We did not specifically select participants for our project; instead, we invited all students from the course to participate, which included a total of six rounds over three semesters. All of them agreed to participate and signed a declaration of consent to the collection and use of data in the context of the project.

Instruments

Our research was not only about generating research material on social inequality and the students' habitus but also about doing research with students by following the paradigm of inquiry-based learning (e.g., Huber, 2014; for research-based learning in teacher education in this journal, see Niemi, 2011; Agud & Ion, 2019). Thereby, we combined qualitative social research methods (Flick et al., 2015) with approaches and methods from participatory research (von Unger, 2014; Bergold & Thomas, 2010).[7]

Specifically, we guided our 120 students to use different qualitative or participatory research methods. Three out of six groups approached the research topic primarily through the appropriation of the collective memory work method[8] (Haug, 1999a; Haug, 1999b; Ortner & Thuswald, 2012). The other three groups used guided interviews[9] (Bock, 1992), group discussions (Bohnsack et al., 2006) and Photovoice[10] (e.g., Buschi & Hedderich, 2021; Frisch, (n.d.)) to explore social inequality on and off campus. These empirical methods

6 In 2018/2019, the proportion of female students in Bachelor's degree programmes at the University of Graz was around 63% (Unidata, 2023). This ratio remained consistent for the Bachelor's degree in Teacher Education in 2021 (Universität Graz, 2022, p. 22).

7 This combination is less common in the German-speaking area, but quite common in the Anglo-American area, where qualitative methods textbooks repeatedly contain chapters on participatory social research (e.g. Denzin & Lincoln, 2005) or journals on qualitative research includes participatory methods (e.g. Bagnoli, 2009; Darbyshire et al., 2005).

8 The collective memory work, promoted by the Frigga Haug in the 1980s, is a feminist social constructionist method that combines research with learning and reflection by bridging the gap between theory and practice. It allows a group to reflect on a shared topic of interest and write short individual memory scenes, which are used as the core material for subsequent analysis and reflection. The method not only encourages a deeper understanding of the chosen topic but also fosters a collaborative and participatory approach to knowledge creation within the students' group. (see Haug, 1999a).

9 The students had the freedom to select any student from the teacher training programme for their interviews.

10 Photovoice is a qualitative participatory research method that involves students in capturing photographs as a means of self-expression and storytelling on a specific topic (in our case, social inequality in the students' environment). By collaboratively selecting, naming, and reflecting on the images, the awareness and critical reflection of students on a specific topic should be enhanced. Moreover, it allows students to actively contribute to the research process with the aim of initiating change processes (for Photovoice in the context of teacher education see e.g. Farley et al., 2017).

were complemented by methods for self-reflection, such as written reflections on one's position on science and academia or visualisations of one's resources and types of capital (Bourdieu, 1983), which were obligatory for all of our course groups. Overall, our empirical data comprises 120 collective memory work histories, 42 interviews, nine Photovoice stories, four group discussions and more than 400 reflection sheets from different exercises (e.g., graphical and written reflections on the own educational path and the capital, reflections on one's own access to academia and science etc.).

The qualitative empirical material was analysed using the intersectional multilevel analysis (Winker & Degele, 2009). This methodological approach, on the one hand, enables us to examine the interconnections between various categories of inequality, including social background, gender, migration background, age, family status and so on. On the other hand, the use of intersectional multi-level analysis allows us to investigate the levels at which students reflect on social inequality, whether it is the level of identity construction, symbolic representation and/or social structure (see Winker & Degele, 2011). Our hypothesis, confirmed during the analysis, was that students tend to reflect social inequality at the individual level, often overlooking its connection to the symbolic and structural level.

Research Design

Our project started with the collection of empirical data between the 2018 summer semester and the 2019 summer semester; this marked the first phase of our project. The empirical material generated by the students themselves was accompanied by written reflections of the course leaders. We discussed initial empirical findings and emerging hypotheses within our research group and with the students in class. This improved the quality of our research process and led to further development of (new) exercises aimed at fostering students' habitus reflexivity. In the second phase of our project, we continued the analysis of empirical data and created Open Educational Resources (OER),[11] which contain both theory cards (in which complex theoretical content is described briefly, in simple language and with empirical examples) and cards with concrete practical exercises[12], which encourage the habitus reflexivity of students or other persons.

In order to ensure quality criteria in the qualitative research process (Steinke, 2000, p. 186), we documented the whole research process from data

11 **Our Open Educational Resources are available at https://lehrkompetenz.uni-graz.at/de/forschung/habitus.macht.bildung/.**

12 These exercises were also practiced and reflected with students in seminars.

collection, our explicit and implicit expectations to our group interpretations (inter-subject comprehensibility), connected the theory and analysis with empirical examples (empirical foundation), tested the limits of our research (limitation) and reflected our role as researchers and course leaders (reflected subjectivity).

As explained in detail in the next chapter, our analysis confirmed the previously still unsystematic assumption of a theory-practice tension, which was based on the students' repeated questioning of the benefits of theory for practice. Based on the following explanations, we want to explore the question of how students perceive and cope with content that cannot be directly translated into school/teaching practice.

Results

Scientific knowledge claims to be timeless and universally valid, while practice aims to solve concrete, instant, practical problems. Science and practice thereby look at reality from different perspectives: the former with the aim of gaining generalisable knowledge, the latter with the aim of shaping and mastering specific situations and challenges. Moreover, in science, complexity is intentionally increased, whereas in practice, it is reduced for the purpose of applicability (Rothland, 2020, p. 136.). While student teachers often desire specific, clear answers to questions regarding practical schoolwork, science generates questions and diverse, uncertain, empirical findings.

Text and theory work and the lack of relevance for the teaching practice

Students in teacher training tend to perceive the educational science basics, such as quality management and education, social conditions in educational processes and pedagogical research, as the theoretical side of their studies. This often leads to resistance and a lack of understanding, particularly if they see no direct relevance for their future work as teachers, as the following student quotes indicate:

> *The redundancy of much of the teaching content (thematic overlaps, idle time, irrelevance, etc.) urgently needs to be revised; possibly also less theory-based training for what is, after all, a very practical profession.* (UK, summer semester 2018, Reflective Writing[13])

13 The literal quotations have been translated into English by us and are structured according to the following scheme: Anonymised abbreviation, course term, name of the method or exercise.

> *I now perceive science as an excess of theories that often lack practical implementation*. (Bizzl, winter semester 2018/19, Me and Academia)

Resistance to theory not only refers to the critical questioning of prevailing patterns of thought, perception, and action in educational institutions. It primarily refers to the fact that theoretical knowledge does not appear to be directly transferable into school practice. What follows is disappointment with the teacher training programme, as the following quotes show:

> *But theory and practice are still two different things. And when I am in school, theory often doesn't help me at all. And if I've never had much practice, then I think I'll have an insane problem later in [school] life.* (Alex, summer semester 2019, Group Discussion 3).
>
> *She*[14] *had expected more from the teacher training, at least a better preparation for practice. Everything she had learned so far was theoretical and not very suitable for teaching. How can a philosophical theory help her if a student is not enthusiastic about her teaching?* (Cat, summer semester 2019, Collective Memory Work 'When I was afraid of not being professionally competent enough')
>
> *But the question is: With what literature do you deal, and how meaningfully is it related to my studies? That is a difference. If I have to deal with literature that doesn't really matter for my later career, or even for my courses later in my studies, then it's actually pointless in my eyes.* (Charlie, summer semester 2018, Group Discussion 2)

As these statements make clear, teacher students are strongly focused on their (future) work as teachers and, therefore, consequently demand content that prepares them for this very task. They continuously question any exercise, content, theoretical concept and similar regarding its usability for school. While anything with clear, practical relevance is preferred and demanded, theory courses with no clearly visible connection to practice are considered pointless and useless. This often leads to doubts among students, particularly during the first semesters, as they initially (thought to) have chosen a programme that prepares them for a specific profession.

> *There were not only highs during my studies. Rather, most of my university career so far has been characterised by self-doubt. It happened that I simply had the feeling that I was too stupid for my studies. These doubts were also the cause of my numerous considerations to give up my studies and take up an apprenticeship instead.* (FZ, summer semester 2018, Reflective Writing)

14 By doing collective memory work, memory stories are formulated in the third form.

> *Regarding our teacher training programme, I think we have far too little practice. Later, we must teach children, and we only have six internships in our degree programme. And when are we really supposed to learn it? If not now, when? We can't stand there in front of a class and not get along with them at all. I think, especially in teacher training, it would be important for us to have more practice*. (Alex, summer semester 2019, Group Discussion 3)

At the same time, however, our empirical material indicates that the rejection of theoretical content and the demand for practical content is not equally desired by all students. Thus, there seem to be two groups of students. The first group of students has a strong practical orientation and feels that theory work is pointless or a waste of time. Conversely, the second group agrees that theory is important. Three students belonging to the latter group describe it as the following:

> *I would see it differently. Because when you read books, and you put it in your own words, and you deal with literature, it gives you a lot. Because you deal with a topic from different angles. It's more of a question of how useful it is if I stubbornly learn everything by heart for a two-week period.* (Sascha, summer semester 2018, Group Discussion 2)
>
> *Knowledge and theory give me support; they somehow create stability and security, and knowing that you know something is reassuring*. (XY, summer semester 19, Me and Academia)
>
> *Theory is not useful right at the beginning [of the schoolwork]. I can acquire practical skills in practice. And only later, when I am familiar with the practice, does theory come into play. And that's how I would see it for the teacher training programme. Therefore, I'm more of an opponent of an excessive practical orientation in the teaching programme.* (Toni, summer semester 2018, Group Discussion 2)

Another student formulates it even more strongly when speaking about theory as the practice of university and expressing his conception of universities as theoretical places. At the same time, he establishes an opposition between academia and the working class by connecting practice with people from the 'non-academic milieu' who, in his opinion, have a stronger need for practical knowledge. This already indicates that the theory-practice dualism has an inherent classicist element, as demonstrated in the following quote:

> *In my personal opinion, practice is not the measure of all things at university. Maybe that's the case in teacher training because you study to be active in practice. But the university is supposed to be a theoretical place where I do science, and, in research, I have practice, sometimes more, sometimes less.*

> *But actually, the practice of university is theory. And I think the stereotype simply comes from the fact that people who are not in the academic milieu are very application oriented. That's obvious. Their everyday life is limited. They get up in the morning, go to work, come home in the evening, watch ORF*[15] *for a while, then go to sleep and get up again. They wouldn't have the time to deal with the theoretical aspects of the world. Instead, when they read something, it might be a cookbook because it is simply application oriented. Or they read some guidebook because it is application oriented. But they certainly don't read Kleist to broaden their minds. That's what I think. So, there's actually nothing to say against theory at university; that's why I'm actually there.* (Luca, summer semester 2019, Group Discussion 3)

Theory versus practice: a question of the field of study

The dualistic relationship between theory and practice is not only created by students when referring to the contents of their teacher training programme but also when contrasting teacher training with other fields of study. While the comments in the previous part indicate that teacher training is often perceived as too theoretical, this perception changes when looking at different fields of study. In direct comparison with other fields, teacher training seems to be more practice oriented.

> *I think that the teacher training programme is perhaps one of the studies that has the most practical relevance. I think we are a bit privileged … I think that we are the ones who have the most [practice]. Or quite a lot. Compared to other degree programmes.* (Lea, summer semester 2019, Group Discussion 3)

Theoretical content, therefore, seems to be the reason that prior studies were terminated or that the teacher training programme is preferred over others, as shown in the following quotes:

> *But as it then turned out, environmental systems science has exactly nothing to do with environmental engineering. It didn't appeal to me at all. It was very, very theoretical, very technical, very experiment based. It quickly became clear that it was nothing for me.* (PH1, summer semester 2019, Interview)
>
> *Well, I've always been a musician and liked to make music myself. My study in musicology is just a lot of theory and talking about music, but not 'doing it yourself'. And that has always bothered me somehow.* (Egi, summer semester 2018, Interview)

15 ORF is an Austrian public TV station.

> *In principle, I started studying mathematics for a bachelor's degree and not for a teaching degree. I liked it in the beginning, but it was very demanding. At the end of the first semester, I reached the first point where I thought, this is not for me, because it's just too demanding, too much at once. Just mathematics, just headaches, that was quite a lot* (Theo, winter semester 2018/19, Interview)

Therefore, the conception of the role of theory seems to understandably vary not only between different fields of study but also within the teacher training itself. In the following quote, a student who is studying to become a teacher in music and history talks about the different emphasis on theory and practice, comparing the subject didactics in the music and history programmes:

> *The music studies programme is simply very practice oriented. History studies are very literature oriented, although, of course, both music and history are humanities. You have a really high scientific focus in history; that's not the case in the teacher training with a focus on music education. Because, as I said, there is a lot of practice and also in the courses, for example, in music history or in subject didactics, a lot is taught about the subject itself and less about what is going on in the academic environment and what the state of research is. So, there is less of a scientific focus, which was very important in history studies: understanding debates in the field and reading and knowing certain authors and standard books. Studying history was certainly more complex on a purely cognitive level than studying music.* (Anna, summer semester 2018, interview)

Encouragement through (school) practice

While for most students in our project (though, as shown, not for all), theory appears burdensome and contributes to self-doubt, practice is understood as something that helps to alleviate doubts and asserts students in their choice of studies. Thus, practical training experience within the bachelor's degree programme is often seen as a litmus test for the choice of study or career. The experience is used to put aside any uncertainties about the choice of study that arise due to the supposedly pointless, laborious, and repetitive theory- and research-based courses at university.

> *I never doubted history. In German, however, I did, but the PPS1[16] encouraged me to continue with it.* (JR, summer semester 2018, Reflective Writing)

16 PPS is the abbreviation for pedagogical practical studies (Pädagogisch-Praktische Studien), the practical school training part of the curriculum.

> *After the first internships, I knew I was up to the challenge.* (SU, summer semester 2019, Reflective Writing)
> *Every time I do an internship, I remember why I'm studying [teacher education], and it motivates me all over again.* (Alice, summer semester 2018, Reflective Writing)

Furthermore, teaching-related employment also proves to be useful for one's later career because of important and much-needed practical experience for professionalisation:

> *A part-time job is useful for my future profession. For example, when we, as students in teacher training, give someone private tuition, it is certainly not bad, because you're already gaining practice. Or also coaching lessons for us sport students, for example, swimming lessons.* (AO27, summer semester 2018, Group Discussion 1)

When comparing the different explanations of the relationship between theory and practice in teacher training, it becomes clear that students are referring to or constructing a hierarchical relationship between the two. In university studies, the teaching of theories and scientific methods is central and considered as the starting point of learning a subject. However, the perception of students in teacher training is different. As demonstrated by our empirical material, most teacher students reject theoretical content, not least because it makes them doubt their choice of study and profession.

In contrast, practice appears to be the component that is given preference and is considered more important because it is perceived to serve the pedagogical orientation of teacher training. The question that remains is how to deal with this tense relationship between theory and practice or academic and pedagogical orientation. How can lecturers in teacher training support students in dealing with this tension? Finally, for which students does this tension prove to be seemingly irresolvable, while others navigate through it with apparent ease?

Discussion

Our project's motivation was to make social inequality in educational institutions a central topic. By reflecting on one's habitus and grasping the connection between habitus and experiences in the educational system, we wanted students to understand the power relations in pedagogical institutions and relationships. One of the central power relations that emerged is the relationship between theory and practice. While we originally thought that reflecting on

the habitus could only help to identify social inequalities, the analysis of our empirical material shows that habitus reflexivity can also support students in dealing with the different logics of academic and pedagogical orientation or, in other words, the ones of university and school.

Our empirical data indicates that negative feelings, for example, about the amount of theory or how to deal with theory, occur not only, but above all, at the beginning of studies and especially when the university is an unfamiliar environment. Depending on the fit between one's habitus and the requirements and structures of the university, students succeed to varying degrees in dealing with the tense relationship between theory and practice. As an explanation for unpleasant feelings towards and experiences with theory, we draw on Lars Schmitt's (2015) concept of habitus-structure conflict, which also explains emotions regarding studying in general. This concept describes that 'if we are "free" to choose, we are more likely to choose such situations, people, environments that fit what we have already internalised. […] Stick to your knitting – otherwise you will get a habitus-structure conflict […]' (p. 201). Due to the habitus-structure conflict, some of the students participating in our project felt more uncomfortable and out of place than others. It seems that students who describe themselves as the first in their family to attend a university, in particular, struggle more with this theory-practice tension. Some even withdraw and avoid contact with other students and teachers or consider alternative options within or outside the university, as our empirical analysis has shown. Bourdieu (2001) refers to this phenomenon as self-selection. The overload, the fear of not knowing enough, and consequently also self-selection is evident in the following statement made by a student:

> *The student was very uncomfortable with her [lack of] prior knowledge and did not dare to inquire more closely because she was ashamed to embarrass herself. She did not know if other students felt the same way as she did, since no one asked questions. She felt completely alone in her situation. ... Unfortunately, her fear of not being competent enough dragged on, and thus, she changed studies and chose a subject in which she felt more confident.* (Ivy, summer semester 2019, Collective Memory Work 'When I was afraid of not being professionally competent enough')

The quote makes clear that the 'fit of habitus and position', as El-Mafaalani (2012, p. 84) explains, can act in a negative sense 'as an invisible barrier, as a social closure mechanism, also in the form of self-discrimination, that is, as a process of self-exclusion'. The fit between habitus and position seems to be easier for those students who are more familiar with the structures and requirements of science and university. Conversely, students who lack this knowledge,

or especially first-generation students, seem to struggle more with it, as the following statements indicate:

> *It's often the case that if you have a text, you don't know certain words because you don't use all this academic language.* (SU3_2, summer semester 2019, Interview)
>
> *He has attended many seminars in the last two years. In the beginning, he always sat in them with beads of sweat all over his body, afraid of breaking from the demands made.* (Geri, summer semester 2019, Collective Memory Work 'When I was afraid of not being professionally competent enough')
>
> *Sometimes, when I am sitting in the lecture, and things are mentioned that should be comprehensible to everyone by now, but I have no idea about it, I feel inferior.* (Kat, winter semester 2018/19, Me and Academia)

How can the tension between the different logics of theory and practice, university and school, and the doubts and the danger of self-exclusion be addressed? Habitus reflexivity may help to tackle these challenges. By examining one's habitus, habitus reflexivity aims to understand one's position in combination with the structures, power relations and mechanisms that characterise educational institutions such as schools or universities. Additionally, it helps in preparing for and dealing with conflicts that can arise from the different expectations that students have, as well as the expectations placed on them by academic lecturers. Referring to Kergel and Heidekamp (2019, p. VI), habitus-sensitive reflections enable questioning the milieu-specific implications of the educational space as well as one's milieu-specific understanding of the profession. Promoting habitus reflexivity among students enables them to develop an awareness of their own habitus and reflection of questions like: Why do I favour certain learning contents while having an aversion to others? Why does theory sometimes seem foreign, complex, boring, and dispensable? What kind of knowledge and values are reflected in certain theories, and who is formulating them from which point of view? Why is practice seen as the most important thing in teacher education? And how is this linked to social relations like the neoliberal university that privileges employability? Where do I come from, and why do I have such a hard/easy time fitting in at university? How is this linked to my social background and to the often invisible functioning of power in university?

As the habitus is seen as a link between individual and social structure, habitus reflexivity allows for a deeper understanding of power imbalances and social inequality in society and education systems. Therefore, it also aids in thinking about classist relations in educational institutions such as universities. At the

same time, habitus reflexivity can motivate not only students but also lecturers at universities to reflect on the tense relationship between theory and practice and classist relations. It is useful to understand why theoretical content is often given preference in teacher training as well as in university teaching in general and why it seems to be superior and more important than practical content.

Conclusion

Based on the findings in the project Habitus.Power.Education, we discussed the tension between theory and practice and between academia and school in Austrian teacher education. Despite repeated student requests to establish a direct practical relevance of theoretical contents, we argue that teacher training is neither just a place where future teachers are educated/trained nor is it a space in which theory is conveyed without purpose. As we have shown in our analysis of empirical data, teacher training in Austria combines both elements and, therefore, follows academic as well as pedagogical orientations. Both students and lecturers need to learn to deal with these tensions and actively work on certain contradictions within teacher education. Consequently, the concept of habitus reflexivity can be helpful in overcoming a hierarchical understanding of both theory and practice and becoming more aware of the important links between them. One student reflects on the theory-practice relationship as follows: 'It is often very nice to see how the theory of my subjects is implemented in "real" life' (CPT. Bacon, summer semester 2019, Reflective Writing). Another, answering the question of what students take away from the course, wrote: '…theory is important for the understanding of diverse pedagogical actions (Bourdieu)' (Z, winter semester 2018/19, Evaluation).

Drawing on these findings, it can be concluded that at least four moments of interconnectedness between theory and practice must be pointed out for teacher education: First, pedagogical professionalism requires that teachers not only behave in a respected manner in pedagogical settings but they also have to be able to theoretically justify their actions and understand why they do what they do (Oevermann, 1996). Second, theory can help to create distance of and reflection on pedagogical practice, which are both components of teacher professionalism (Schratz et al., 2010; Cramer, 2014), and are equally important for criticism and learning at university. Third, the theory contains a 'speculative moment' (Pongratz, 2010, p. 10) that points beyond the status quo and enables other possibilities for thinking and acting. Finally, practice is a necessary point of reference in pedagogical theory (Helsper, 2016). Practice thus helps to illustrate theoretical concepts and models, to reveal their weaknesses

and ambiguities, and to make knowledge applicable. We, therefore, argue for the dissolution of this dualistic relationship between theory and practice and instead plead for a coexistence of theory and practice, because '[...] there is nothing so practical as a good theory' (Lewin, 1951, p. 169).

To demonstrate the importance of both theory and practice and to illustrate the practical applications of theories and statistical data on social inequality and habitus to students, we created teaching/learning material[17] in the form of theory cards[18] and exercise cards.[19] Thus, we attempted to bridge the gap between theory and practice and enable the analysis of social inequality in education within the framework of courses, workshops, and other training formats, in order to support the development of participants' habitus reflexivity. With the help of our material, students, teachers, and university lecturers should be encouraged to reflect on their involvement in social power relations and their reproduction in school practice. They should become aware of their patterns of perception and interpretation and their own social position when answering the following questions:

- Why do some students have an easier time at school and university than others? Why does some teaching and learning content suit some students more and others less?
- What should teaching/learning material look like in order to appeal not only to those who have the advantage of a large cultural capital?
- Who attends which type of school, who makes it to university, and which forms of capital prove to be helpful or hindering?
- What goals are associated with education – does education serve practical application or is it more aimed at distinction?
- Which students or teachers do I prefer, and why? Which students do I find hardworking/lazy, good/bad, un/gifted?
- What norms and values are expressed in the ideas of achievement, success, educational advancement, etc.?

With reference to Vogel (2019, p. 3323), teachers without the ability to reflect their habitus are unable to understand the social position of their students

17 The materials are available as OER on the website habitusmachtbildung.uni-graz.at.

18 In the theory cards, (scientific) debates around Bourdieu, social inequality, habitus reflexivity, learning space design, knowledge, and power and much more are presented in a linguistically comprehensible way.

19 The exercises include various reflection exercises, writing exercises, participatory research methods such as photovoice as well as social science research methods such as interviews and group discussions. They all aim to reflect on social inequality from different angles (something like pictures, memes, words, songs, games, discussions, etc.) in order to stimulate the development of habitus reflexivity.

and its associated implications. They are not aware of their own involvement in social relations (reproduction) and the patterns of thinking, perceiving, judging, and acting that relate to it. This lack of awareness can promote the pressure of sanctions and selection, as well as the symbolic violence (e.g., Bourdieu, 1997; Schmitt, 2006) associated with it, especially among students from non-academic backgrounds. One student highlights the importance of habitus reflexivity referring to heterogeneous school classes with children having different social backgrounds as the following:

> *An important point is that children in school experience different levels of support from home. They are given different resources or values. Some get no support from home at all, and some get a lot. And I think as a teacher, you have to support the children who don't get any support at home even more*. (Dattel, summer semester 2019, Group Discussion 3)

In addition, by emphasising the importance of theory and practice and strengthening habitus reflexivity in teacher training, we are also reacting to changed framework conditions in schools, influenced by educational policy. We contribute, for example, to meeting the new ministerial guidelines on school quality. In the Austrian Quality Framework for Schools, the Federal Ministry of Education, Science and Research (BMBWF, 2021, p. 11ff.) highlights that teachers and other pedagogical staff should be able to:

- *reflect on their own attitudes, behaviour, and preconceptions towards learners with the aim of better recognising and activating their potential;*
- *enable learners to reflect on their own attitudes, behaviour, and preconceptions;*
- *act as reflective practitioners, ensuring and developing the quality of their teaching on an ongoing basis*.

Thus, habitus reflexivity in teacher education aids in perceiving and understanding inequality and power imbalances in the education system, responding to changing (educational policy) conditions and developing agency, which is essential for navigating the ever-changing and complex world of modern schools.

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Disciplinary Differences and University Teachers' Perspectives: Possibilities of Applying the Teaching Perspectives Inventory

Jovana Milutinović[1], Biljana Lungulov*[2] and Aleksandra Anđelković[3]

Based on the conceptual and empirical framework of five perspectives on teaching and earlier studies that have suggested a link between teaching perspectives and teachers' academic disciplines, this paper aimed to examine the differences in the university teachers' perspectives from various academic disciplines and faculties. This research also aimed to validate the Teaching Perspectives Inventory on a sample of 526 university teachers in Serbia. The results confirmed the differences in the university teachers' perspectives and led to the conclusion that hard sciences teachers were more teacher-centred, while soft sciences teachers were more student-centred. Additionally, exploratory factor analysis indicated that the slightly modified version of the TPI is applicable and reliable to use in other educational contexts. However, it can be concluded that research on teachers' perspectives is limited to specific cultural, educational, and research contexts.

Keywords: academic disciplines, hard/soft sciences, higher education, perspectives on teaching, university teachers

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Razlike med strokami in stališča visokošolskih učiteljev: možnosti uveljavitve inventarja perspektiv poučevanja

Jovana Milutinović, Biljana Lungulov in Aleksandra Anđelković

Na osnovi pojmovnega in empiričnega okvira petih perspektiv poučevanja ter starejših študij, ki so nakazale na povezavo med perspektivo in akademsko disciplino, ki ji pripada učitelj, je prispevek skušal preiskati razlike med pogledi visokošolskih učiteljev različnih strok in fakultet. Raziskava si je obenem prizadevala validirati inventar perspektiv poučevanja na vzorcu 526 visokošolskih učiteljev v Srbiji. Rezultati potrjujejo, da razlike med pogledi visokošolskih učiteljev obstajajo, kar je pripeljalo do zaključka, da znotraj naravoslovnih znanosti prevladuje na učitelja osredinjen pristop, družboslovne vede pa zagovarjajo osredinjenost na študenta. Poleg tega je eksplorativna faktorska analiza pokazala, da je nekoliko spremenjena različica inventarja perspektiv poučevanja uporabna in zanesljiva tudi v drugih izobraževalnih kontekstih, lahko pa se sklene, da je preiskovanje učiteljskih pogledov omejeno s kulturnimi posebnostmi ter z izobraževalnimi in raziskovalnimi okoliščinami.

Ključne besede: akademske discipline, naravoslovne/družboslovne vede, visoko šolstvo, perspektive poučevanja, univerzitetni učitelji

Introduction

Current higher education policies at the international level are directed towards improving the quality of higher education, with a particular focus on the issue of raising the quality of university-level teaching and pedagogical training for university teachers (Aškerc Veniger, 2016; ENQA, 2015; High Level Group on the Modernisation of Higher Education, 2013). The increased need to ensure the quality of teaching placed new demands on university teachers; considering the development of adequate models and programmes through which it is possible to improve the quality of teaching became very important. Results of numerous studies (Gibbs & Coffey, 2004; Ho et al., 2001; Hubball et al., 2005; Postareff et al., 2007; Potter et al., 2015) showed that well-structured and long-term programmes of pedagogical training of university teachers have a significant influence on ways teachers conceptualise lectures, their approaches to teaching, and students' approaches to learning.

However, it is important to note that university teachers do not represent a homogenous group but rather have different socio-cultural, educational, and professional backgrounds. They project and bring different sets of cultural and professional experiences into the educational environment, as well as their personal values and beliefs. Those experiences, values, and beliefs influence and further shape the way university teachers perceive and understand teaching. In this context, it is presupposed that the conceptions of teaching are influenced, if not determined, by teachers' personal traits, professional development, specialisation, previous experience, and other socio-cultural variables (Chan, 1994). However, it has not yet been fully determined to what extent these variables can influence teachers' perspectives on teaching.

Earlier studies have suggested a possible link between teaching conceptions and university teachers' academic discipline. In several studies, it has been concluded that teaching conceptions of university teachers significantly vary in different disciplines; for example, among respondents from the soft sciences, the conceptual change/teaching approach focused on the student has predominated, while for the respondents from the hard sciences, the most predominant has been the transfer of information/teaching approach focused on the teacher (Kemp, 2013; Lindblom-Ylänne et al., 2006; Lueddeke, 2003; Päuler-Kuppinger & Jucks, 2017; Postareff et al., 2008; Stes & Van Petegem, 2014). The research results, therefore, point to the differences between teachers of hard and soft sciences and suggest they prefer two rather different and contrasting concepts of teaching: information transmission and conceptual change. This paper, based on a conceptual and empirical framework developed by Pratt (1998), provides

a certain level of validation of Pratt's construct (1992) of five perspectives on teaching and addresses differences in university teachers' perspectives on teaching, taking into consideration their academic discipline and their faculty affiliation.

Conceptual Framework and Use of TPI in Previous Research

When researching the efficacy of teaching in higher education, many researchers were focused on the field of examining teachers' beliefs and sought to define and empirically confirm teaching conceptions (Chan, 1994; Dall'Alba, 1991; Feiman-Nemser, 1990; Samuelowicz & Bain, 1992; Trigwell et al., 1994). Their analysis resulted in a significant agreement on certain features; categories used independently by different researchers to describe conceptions about teaching have shown a high level of concordance. Drawing from previous research, Pratt (Pratt, 1992; Pratt, 1998; Pratt & Collins, 2000) developed a conceptual framework consisting of five perspectives on teaching. In the paper that led to the development of that framework, Pratt (1992, p. 203) defined conceptions about teaching as cognitive representations of the way teachers think and understand the concept of teaching. Those conceptions are rooted in cultural, societal, historical, and personal frameworks of meaning, and they represent a lens through which teachers observe teaching and learning. Pratt would later use the term 'teaching perspectives' (Pratt, 2002; Pratt & Associates, 1998), emphasising that perspectives represent an intertwined set of beliefs and intentions that guide and justify teachers' actions (the five perspectives are: *Transmission*, *Apprenticeship*, *Developmental*, *Nurturing*, and *Social Reform*). Based on these premises, the TPI instrument was developed (*Teaching Perspectives Inventory*).

The TPI instrument has found wide application in research in many countries on samples of respondents who belong to various cultural contexts and speak different languages (Collins & Pratt, 2011). For the subject of this research, the studies focusing on determining differences in the teaching perspectives of teachers from different faculties and academic disciplines are particularly relevant. Thus, the research conducted by Rotidi et al. (2017) on the subsamples of Greek university teachers and university teachers from other countries (the international sample was drawn from the TPI database) aimed to examine the differences in perspectives between teachers of different faculties as clustered in Biglan's typology (Biglan, 1973). It was determined that Greek teachers from soft disciplines scored higher on the Social Reform, Developmental, and Nurturing perspectives compared to the teachers from hard

disciplines. Nevertheless, this research concluded that although disciplinary differences are real, they are small compared to potential interpersonal differences or even international differences (Rotidi et al., 2017, p. 11).

In the study involving teachers from a research university in the southern United States (Deggs et al., 2008), it was determined that significant differences between teachers of different faculties were only present with respect to the apprenticeship perspective.

Another research study conducted at the *Autonomous University of Yucatan in Mexico* (Canto y Rodríguez & Burgos Fajardo, 2011) also showed that there are differences between teachers in regards to the representation of certain teaching perspectives; teachers from the Faculties of Social Science and Architecture, Art and Design scored higher on the Developmental perspective, while the Nurturing perspective was shown to be more dominant with respondents from the Faculty of Health Sciences and Architecture, as well as the Faculty of Art and Design.

A study conducted at Oklahoma State University (Matofari & Edwards, 2017) showed that there are certain differences in perspectives among teachers from different faculties; teachers from the College of Arts and Sciences had significantly higher scores on the Developmental perspective compared to the teachers from other faculties.

The Present Study and Research Aim

Large individual differences in the experience and competence in teaching exist among university teachers in Serbia, since a vast number of them did not acquire any education or training in pedagogy, didactics, or teaching methods throughout their careers. Consequently, a traditional approach to teaching and prioritising basic knowledge and the content rather than how that knowledge is passed on to others negatively affects the teaching work and its results.

Although the TPI is a widely used instrument for examining teaching perspectives in many countries and in different populations, no study has been conducted in Serbia to validate this instrument on a sample of university teachers. The first goal of this research was to examine the factor structure of the TPI while assuming that the original five-factor structure of the questionnaire would be confirmed. The second goal was to determine the reliability of the Serbian version of the TPI, and it was assumed that high reliability would be confirmed as in previous studies (Chan, 1994; Collins & Pratt, 2011). The third research goal was to explore the differences in teaching perspectives among university teachers in relation to the academic discipline and their faculty

affiliation. Based on the results of previous studies (Canto y Rodríguez & Burgos Fajardo, 2011; Deggs et al., 2008; Matofari & Edwards, 2017; Rotidi et al., 2017), it was hypothesised that the academic discipline and faculty would have influenced the university teachers' perspectives on teaching.

Method

Participants

The research sample consisted of a total of 526 university teaching staff, specifically 65.8% (N = 346) teachers and 34.2% (N = 180) associates. The participants were teachers and associates from eleven faculties within two public universities in Serbia; 342 (65%) from the University of Novi Sad and 184 (35%) from the University of Niš, with 57.2% (N = 301) female and 42.8% (N = 225) male respondents. The sample was suitable and based on the socio-demographic characteristics of the participants, it was concluded that all representative groups of university teachers in Serbia were included; teachers of all academic titles, different ages and different lengths of work experience in teaching at the university level. According to the official data provided by the Statistical Office of the Republic of Serbia (Republički zavod za statistiku Republike Srbije, 2021), about 15% of the teaching staff employed at the University of Novi Sad and the University of Niš participated in this research.

When it comes to the classification of university teachers from different academic disciplines, the predominant model is Biglan's three-dimensional classification (Biglan, 1973), according to which the sciences are divided into Hard/Soft, depending on their methodological rigour and objectivity, Pure/Applied, according to their orientation towards application, and Life/non-Life, depending on whether the disciplines deal with the research of living or non-living subject matter. Regarding the classification of sciences into hard and soft, it is important to note that, based on the revised Biglan classification model (Stoecker, 1993), the teachers from the health sub-discipline are generally more similar to soft sciences than to hard sciences in terms of different pedagogical dimensions (Aškerc Veniger & Kočar, 2018). Furthermore, in the context of the division of sciences into Hard/Soft and Pure/Applied, some studies (Lindblom-Ylänne et al., 2006) show that university teachers from hard and soft sciences are particularly polarised. Using these results, as well as the classifications of disciplines in previous research dealing with teaching approaches (Lindblom-Ylänne et al., 2006; Mladenovici et al., 2022; Stes & Van Petegem, 2014; Trigwell & Prosser, 2020), the classification of teachers from different disciplines was done in the manner indicated by Biglan's classification (Becher & Trowler, 2001;

Biglan, 1973). The structure of the sample with regard to faculties and hard/soft sciences is shown in Table 1.

Table 1

Structure of the Sample with Regard to Faculties and Hard/Soft Sciences

Hard/Soft sciences and faculties	N	%
	526	100
Hard sciences	368	70
Technical Sciences	110	20.9
Mechanical Engineering	17	3.2
Medicine	134	25.5
Agriculture	39	7.4
Sciences	57	10.8
Technology	11	2.1
Soft sciences	158	30
Sport and Physical Education	30	5.7
Economics	18	3.4
Philosophy	77	14.6
Education	25	4.7
Law	8	1.5

Instrument

The instrument used in the research was the TPI (*Teaching Perspectives Inventory*) by Pratt (Collins & Pratt, 2011; Pratt, 1998) with previously obtained permission and consent of the author. The original instrument was translated into Serbian by experts in the field of educational sciences and university teaching using the back-translation method, which is most often recommended for the validation of instruments in cross-cultural research (Cha et al., 2007). The instrument consisted of 45 items that examined five perspectives on teaching, which were assessed on a five-point Likert scale (1=never, 5=always; 1=strongly disagree, 5=strongly agree). Additionally, the instrument was structured through three subscales; each one contained 15 items that examined the Beliefs, Intentions, and Actions of teachers. The data of the original study conducted by the authors of the instrument Collins and Pratt (2011) indicated satisfactory psychometric properties, and the values of the Cronbach's alpha for each of the subscales were: Transmission (.72), Apprenticeship (.73), Developmental (.70), Nurturing (.82), and Social Reform (.83), with an average value of .76. Additionally, in the original study (Collins & Pratt, 2011, p. 366), psychometric

characteristics of the instrument were also checked using factor analysis, which confirmed the five-factor solution that explained the 39.7% of the variance.

Research Design

Data collection was conducted online during November and December 2019, and participants could anonymously complete the questionnaire when it suited them best within three weeks. Participation in the research was voluntary. Before completing the questionnaire, participants were informed about the goals, needs, and importance of the research. Data were analysed using the SPSS software package version 25.

Results

All subscales determined in our study had a normal distribution (Skewness and Kurtosis <1), except for the Apprenticeship subscale (Skewness = -1.24 and Kurtosis = 2.43); the mean values ranged from 3.57 to 4.52 (Table 2).

Table 2

Descriptive Statistics of the TPI on the Sample Consisting of University Teachers in Serbia

Perspective	N	Minimum	Maximum	M	SD	Skewness	Kurtosis	Cronbach's α
Transmission	526	3.14	5.00	4.45	0.43	-.64	-.27	.71
Apprenticeship	526	1.83	5.00	4.52	0.45	-1.24	2.43	.75
Modelling	526	1.25	5.00	4.26	0.63	-.76	.32	.70
Nurturing	526	1.22	5.00	3.67	0.77	-.47	-.15	.86
Social Reform	526	1	5.00	3.57	0.87	-.63	.01	.87

Factor Structure of the TPI

In order to validate the TPI, exploratory factor analysis was applied using the principal components method and given Promax factor rotation. Bartlett's test of sphericity ($\chi^2 = 9889{,}63$; $p < .01$) was statistically significant, which indicated the justification of the data compression procedure. The Kaiser-Mayer-Olkin (KMO) indicator of representativeness was .924, suggesting that sampling was adequate and that the representativeness of the questionnaire was high. Horn's parallel analysis was used as a criterion for extracting the numbers of factors, and it was determined that five factors have a characteristic root value higher than that which would be obtained on the basis of random values obtained on analogue data. A five-factor solution that explained the

questionnaire variance of 45.93% was adopted. Results of the Exploratory Factor Analysis (EFA) indicated that some items should be omitted from further analyses and the scale was reduced accordingly (Table 3).

Table 3

Factor Matrix with Factor Loadings on Five Factors of the TPI

Items	Transmission	Apprenticeship	Modelling	Nurturing	Social Reform
T6 I want students to achieve good results on the test as a result of my teaching	.762				
T4 My job is to present the content and prepare the students for the exams	.703				
T1 I cover planned content very precisely and at a predetermined time	.583				
T5 I expect students to possess good knowledge of information related to the subject	.580				
T3 I make it clear to my students what knowledge they need to possess	.491				
T2 I carefully follow the course content and objectives	.464				
T7 Learning can be improved if the goals are determined in advance	.312				
A1 I put my course in the practical or applied context		.771			
A5 I expect students to know how to apply the content from my subject in a real situation		.637			
D4 My intent is to help students develop more complex ways of thinking		.636			
A4 My intent is to demonstrate how to behave or what to do in realistic scenarios		.628			
D6 I want students to see how complex and intertwined things are		.429			
A2 I apply the skills and methods of an efficient lecturer		.357			
A7 To be an effective teacher, one must be an effective practitioner			.776		
A8 The best way to learn it is through work with good practitioners			.756		
A9 Knowledge and its application cannot be separated			.593		
T9 For a teacher to be efficient, they first must be an expert in the area they teach			.431		
N2 I encourage the expression of feelings and emotions during lectures				.897	

Items	Transmission	Apprenticeship	Modelling	Nurturing	Social Reform
N3 I share my feelings and expect my students to do the same				.830	
N7 It is important to me to acknowledge my students' emotional reactions				.714	
S2 During lectures, I put more focus on values rather than knowledge				.707	
N6 When teaching, I try to establish a balance between caring and setting challenges				.638	
A3 I organise classes so beginners can learn from the more experienced students were				.503	
N8 When teaching, my priority is building students' self-confidence				.434	
N5 I expect students to improve their self-esteem through my lectures				.351	
S5 I expect students to be dedicated to changing our society					.836
S8 Individual learning is not enough without a social change					.815
S3 I help students notice the need for change in the society					.773
S7 My teaching is focused on social changes rather than an individual student					.753
S6 I want my students to become aware of things they take for granted in our society					.736
D8 Teaching should be focused on the development of qualitative changes in thinking					.519

Regarding the reliability of the Serbian version of the instrument, the values of Cronbach's alpha showed that all five subscales had satisfactory or good reliability, with the Social Reform subscale having the highest reliability (.87) and the Modelling subscale the lowest (.70), while the reliability of the scale as a whole was .91 (Table 2). Additionally, good reliability was found for all three subscales related to Beliefs (.79), Intentions (.78), and Actions (.77). Based on Pearson's correlation coefficient, it was concluded that there was a positive correlation between all latent factors ranging from low (.15) to moderate (.55) and no correlations above .85 were registered.

Teaching Perspectives regarding the Disciplinary Differences

In order to determine the differences in the perspectives on the teaching of teachers from different academic disciplines, the MANOVA procedure

was conducted (Table 4). Respondents were assigned to a group of hard or soft sciences based on the faculty at which they were employed. The model as a whole was statistically significant ($F(5,520) = 6.798$, $p = .000$), and statistically significant differences were registered in the perspectives of Social Reform and Nurturing. The soft sciences teachers had higher scores on these perspectives compared to the hard sciences teachers.

Table 4

Differences in the Perspectives on Teaching Depending on the Hard/Soft Sciences

Perspective	Sciences	M	SD	F	df	df_{error}	p
Transmission	Hard	4.47	0.42	3.30	1	524	.070
	Soft	4.39	0.44				
Apprenticeship	Hard	4.52	0.46	0.18	1	524	.673
	Soft	4.53	0.40				
Modelling	Hard	4.29	0.62	3.10	1	524	.079
	Soft	4.19	0.66				
Nurturing	Hard	3.62	0.79	5.39	1	524	.021
	Soft	3.78	0.68				
Social Reform	Hard	3.45	0.89	22.70	1	524	.000
	Soft	3.83	0.72				

The impact of academic disciplines on teaching perspectives was additionally examined regarding the faculties where the teachers worked. MANOVA was applied, and the model as a whole was statistically significant ($F(60,2387) = 2.151$, $p = .000$). Statistically significant differences were registered in all five teaching perspectives. In order to determine the differences in each perspective among teachers from various faculties, the Scheffe post hoc test was applied. The results are presented only for those faculties where statistically significant differences were found (Table 5).

Table 5

Differences in Perspective on Teaching Based on Faculties

Perspective	Faculty of	M	SD	F	df	df_{error}	p
Transmission	Sport and Physical Education	4.52	0.45	3.74	10	510	.000
	Philosophy	4.32	0.46				
	Technical Sciences	4.31	0.43				
	Medicine	4.59	0.37				
	Economics	4.33	0.34				
	Sciences	4.40	0.44				
	Agriculture	4.59	0.35				
Apprenticeship	Philosophy	4.48	0.39	2.77	10	510	.002
	Technical Sciences	4.41	0.54				
	Medicine	4.66	0.38				
	Sciences	4.39	0.41				
Modelling	Philosophy	4.05	0.72	2.88	10	510	.001
	Technical Sciences	4.13	0.67				
	Medicine	4.45	0.52				
	Economics	4.11	0.41				
	Sciences	4.24	0.65				
	Agriculture	4.34	0.63				
	Education	4.48	0.60				
Nurturing	Sport and Physical Education	3.95	0.71	2.87	10	510	.001
	Philosophy	3.68	0.70				
	Technical Sciences	3.46	0.82				
	Medicine	3.83	0.73				
	Education	3.98	0.52				
	Sciences	3.40	0.73				
	Agriculture	3.72	0.73				
Social Reform	Sport and Physical Education	3.76	0.83	3.28	10	510	.000
	Philosophy	3.89	0.67				
	Technical Sciences	3.40	0.91				
	Medicine	3.53	0.94				
	Education	3.74	0.60				
	Sciences	3.20	0.80				
	Agriculture	3.62	0.73				
	Law	4.02	0.91				

Discussion

Numerous studies indicated the importance and role of teachers' beliefs and perspectives on teaching (Dall'Alba, 1991; Collins & Pratt, 2011; Feiman-Nemser, 1990; Kemp, 2013), and the results confirmed that there is a correlation between these beliefs and teachers' actions in the direct teaching practice (Kember & Kwan, 2000; Trigwell & Prosser, 1996; Samuelowicz & Bain, 2001). However, in the educational context of Serbia, there is an obvious lack of standardised instruments for examining the perspectives on teaching and teacher beliefs, especially in the context of higher education. Having this in mind, our first goal of this research was to validate the TPI as a widely used instrument in international studies and to examine the possibility of its application in the educational context in Serbia.

The EFA results indicated that after reducing the scale, the five-factor structure of the instrument was obtained as originally assumed, but it differed from the original factor structure (Collins & Pratt, 2011) and was more similar to scale validations in other studies (Chan, 1994; Lake & Matters, 2009; Misieng, 2013). In our study, it was found that the four extracted factors, as well as most of the items that these factors gathered, corresponded to the original structure of the scale. However, the factor related to the Developmental perspective was not extracted separately, as six items from this subscale were omitted due to low loadings and high cross-saturation, and the remaining three items belonged to the other subscales (Apprenticeship and Social Reform). Such results were obtained during the adaptation of the TPI in the Portuguese population as well, where four factors were also extracted, and the items related to the Developmental subscale were distributed to other factors (Rebelo et al., 2007, as cited in De Lima et al., 2014, p. 219). Additionally, a four-factor scale structure was determined in a study in New Zealand, with the Developmental subscale being reduced the most and attached to the Apprenticeship subscale (Brown et al., 2009).

The modified scale contained 31 items that were distributed into five factors: Transmission, Apprenticeship, Modelling, Nurturing, and Social Reform. These factors accurately represent the whole scale of teaching perspectives, as they include four factors from the original scale (Collins & Pratt, 2011) and a fifth factor that has been extracted and described in another study (Chan, 1994). The Apprenticeship perspective factor was divided into two factors, both of which relate to practice but have been found to measure two different constructs: Apprenticeship-Practice and Apprenticeship-Modelling (Chan, 1994).

The first factor identified in our study included six items from the original scale and was related to the Transmission perspective, which was based on the

belief that certain knowledge and teaching content should be effectively and accurately transmitted to students (Pratt, 1998). The second factor was related to the Apprenticeship perspective, and it included four items from the original scale as well as two additional items. These items indicated that learning is best realised through practical application and that knowledge and practice are inseparable concepts (Chan, 1994). The third factor gathered three items from the original Apprenticeship subscale and one more item, which all indicated that 'the role of the teacher was to function as a role model, to demonstrate desirable ways and values of working' (Chan, 1994, p. 145). Accordingly, the third factor is called Modelling. The fourth factor contained six items from the original subscale corresponding to the Nurturing perspective and two additional items. All items indicated that teachers are committed to creating an environment that provides support to all students but also a challenge in terms of progress and learning (Pratt & Collins, 2000). The fifth factor referred to the Social Reform perspective and contained five items from the original subscale, which all implied the focus of teaching on influencing changes in society (Pratt & Collins, 2000).

The differences found in our research regarding the factor structure of the TPI in relation to the original structure can be explained by the fact that individual items are interpreted differently by different respondents. An example of this is the item *Good teaching of the content is like performing a theatrical play*, which could be misinterpreted or even negatively interpreted in the educational context in Serbia. Also, items that had high cross-saturation, when translated into Serbian, could content-wise refer to several perspectives on teaching. Such findings may indicate that certain items have different meanings for respondents in Serbia compared to respondents in English-speaking countries, which is the most common challenge when translating and adapting instruments in a cross-cultural context (Cha et al., 2007; Sousa & Rojjanasrirat, 2011).

The second goal of the research was to examine the reliability of the Serbian version of the TPI, and it was determined that the modified scale satisfied other psychometric criteria. The reliability of the whole scale was very high (.91), with good reliability of all three subscales related to Beliefs, Intentions and Actions (above .70), as well as good reliability of all five subscales related to teaching perspectives (above .70). Such data were also obtained during scale validation in other populations (Chan, 1994; Misieng, 2013) and indicated that the degree of similarity of all retained items in the revised questionnaire was high and had the same unique subject of measurement. It was also found that all selected factors positively correlated with each other in the range from low ($r = .15$) achieved by the factors Transmission and Social Reform to moderate correlations ($r = .55$) between the factors Nurturing and Social Reform, which

is in line with data by the authors of the scale (Collins & Pratt, 2011). Moderate and low correlations are indicators that the extracted factors in the modified version of the scale present different constructs, with each one of them measuring a different perspective on teaching.

Examining the latent structure of the TPI, it can be concluded that university teachers in Serbia very clearly recognise and define their role as a teacher who transmits teaching content, cares for students, pays attention to social values, and connects university teaching with practice and work in a real-life context. However, an additional isolated factor related to the perspective of the teacher as an expert who guides students and models their learning processes indicates that in the educational context in Serbia the role of teachers and their importance in higher education has been more emphasised, which was found in research in another educational context (Canto y Rodríguez & Burgos Fajardo, 2011). In this sense, this research represents a contribution to the validation of the TPI in other social and cultural circumstances since, in addition to similarities with the original study, it also indicates certain specifics that occur in different educational contexts and cultural traditions.

Academic Disciplines and Teaching Perspectives

Studies and research indicate the existence of different epistemic cultures in the production of knowledge of researchers and scientists belonging to different academic disciplines (Knorr Cetina, 1999), the connection between culture and knowledge of a particular academic discipline and academic tribes and territories (Becher & Trowler, 2001), and even the differences among scientists belonging to the same academic discipline (Horowitz et al., 2019). In addition to research and scientific approaches, such differences are reflected in the teaching process, since university teachers use those teaching methods that reflect the epistemological assumptions of their academic discipline (Neumann et al., 2002) and with which they identify the most (Neumann, 2001). Differences depending on academic discipline have also been identified when it comes to perspectives on teaching (Deggs et al., 2008; Rotidi et al., 2017), as well as teaching approaches that are teacher-centred or student-centred (Kemp, 2013; Lueddeke, 2003; Päuler-Kuppinger & Jucks, 2017).

Accordingly, the third goal of this research was to examine the differences in teaching perspectives among teachers of different academic disciplines and different faculties. Statistically significant differences were identified between teachers from hard and soft sciences regarding the Nurturing and Social Reform perspectives, with teachers of soft sciences scoring higher on these perspectives. These results indicated that teachers in Serbia who belong to the

social sciences and humanities are more focused on referring to the importance of social change, as well as on caring for students compared to teachers of natural, technical, and technological sciences. Very similar results were obtained in a study conducted on a population of Greek teachers, for which it was found that teachers of soft sciences had higher results in the Nurturing, Social Reform, and Developmental perspectives (Rotidi et al., 2017). In contrast, in the same research, hard sciences teachers from the international sample/TPI database had higher scores on these perspectives than teachers of soft sciences, which was contrary to previous and expected findings.

Some authors have pointed out that there are correlations between the perspectives of Transmission and Apprenticeship and that these two concepts are related and teacher-centred, while the perspectives of Nurturing, Social Reform, and Developmental are interrelated and student-centred (Chan, 1994, p. 100). Our findings are consistent with the findings of other studies (Kemp, 2013; Lindblom-Ylänne et al., 2006; Lueddeke, 2003), which confirmed that the teachers of soft sciences have a more student-centred perspective than teachers of hard sciences. The identified differences could be explained by the fact that teachers in different disciplines had gone through different processes of socialisation and education and accordingly adopted different concepts of teaching (Samuelowicz & Bain, 2001), as well as that students (un)willingly accept the norms of teaching and learning that exist in certain disciplines (Jarvis-Selinger et al., 2007).

The differences between academic disciplines are even more observable when comparing teachers from different faculties. In this case, statistically significant differences are recognised in all five perspectives on teaching, which further confirms the findings that there are differences between academic disciplines regarding the teaching perspectives (Deggs et al., 2008). The results again point to the conclusion that there are differences between teachers of soft and hard sciences, which is the most common variable in research on differences between disciplines (Kember & Leung, 2011), although exceptions have been observed in some perspectives. These differences may be the result of soft science teachers being more focused on teaching and learning, while hard science teachers could be more research-oriented (Neumann, 2001).

The perspective of Transmission and the approach to teaching as knowledge transmission were the least present among teachers from the Faculty of Technical Sciences and the Faculty of Philosophy and the most among teachers from the Faculty of Medicine. These results were not surprising given that 'health disciplines require students to acquire a body of basic knowledge which is reasonably well established' (Kember & Leung, 2011, p. 294). The Apprenticeship

perspective, which implies that learning is best realised through practical application, was the least present among teachers from the Faculty of Sciences and the most among the teachers from the Faculty of Medicine. The reason for such differences can be found in the structure of study programmes, since practical skills are developed in medical students through clinical and professional practice, which is not the case in natural science study programmes (Kember & Leung, 2011). The teacher as a significant factor in modelling the learning process is a perspective that was the least present at the Faculty of Philosophy but surprisingly the most at the Faculty of Education, although both faculties belong to the soft sciences and study-related fields. Teachers from the Faculty of Education, in our research, had very strong Nurturing, Modelling, and Social Reform perspectives, which confirmed the results that 'teachers who had pedagogical experience, knew their job expectations and had a nurturing personality perceived themselves as role models' (Chan, 1994, p. 170). The Nurturing perspective was most prevalent among teachers from the Faculty of Education, as it was in previous research (Matofari & Edwards, 2017), followed by the Faculty of Sport, which was confirmed by pre-service teachers of physical education (Hyndman, 2014) and the least among teachers from the Faculty of Sciences. These results further confirmed the findings that student-centeredness is more present in soft science and medicine teachers than in hard science teachers (Kember & Leung, 2011; Kemp, 2013; Neumann, 2001). Regarding the perspective of Social Reform, expectations were confirmed, and the approach to teaching focused on social change was most present among the teachers from faculties belonging to soft sciences (Law, Philosophy, Education, Sport). Such results have been confirmed in other studies (Rotidi et al., 2017), since teaching at these faculties implies a high level of discussion, the exchange of opinions, and the development of critical thinking (Kember & Leung, 2011).

It is important to point out that teachers from the Faculty of Medicine had higher scores in almost all dimensions compared to other teachers (except for the Social Reform dimension). Such results can be justified by the fact that medical science teachers associate teaching more with practice, perceiving themselves as role models given that they are experts in practice, that due to the nature (and the epistemic culture) of the discipline a significant amount of information is transmitted during teaching but also that it is also a nurturing profession, which affects the attitude towards students (Kember & Leung, 2011). In contrast, it is interesting that teachers from the Faculty of Sciences had statistically significantly lower scores on all perspectives compared to other teachers, especially on the perspectives of Nurturing and Social Reform, which was confirmed by the results regarding pre-service teachers (Jarvis-Selinger et al., 2007). The explanation can

be found in the fact that science teachers concentrate more on conveying already grounded theories through a method of teaching that is predominantly focused on giving lectures, which reduces the nurturing approach and provides limited opportunities for students to discuss and develop practical skills (Kember & Leung, 2011). The results of our research indicate that a thorough understanding of key concepts of teaching and learning unequivocally depends on the characteristics of different domains of knowledge, academic disciplines and social milieu and that ignoring these differences leads to weakening related university practices and policies (Neumann et al., 2002).

Conclusions

As in all studies of this type, certain limitations should be mentioned. In this research, university teachers completed a questionnaire on a voluntary basis, which may mean that answers were collected from teachers who are certainly very interested and motivated to teach. Additionally, a significantly smaller number of respondents from some faculties participated in the research, which led to having a less representative sample and a lower representation of some faculties. However, it is important to emphasise that in addition to the identified differences between teachers of different academic disciplines, this research also has an additional value because it represents an analysis of perspectives on teaching in different educational and social contexts and thus contributes to previous studies and validation and application of the TPI in other countries.

Although the research is limited to specific cultural, educational, and research contexts, the significance of this study is reflected, in addition to its scientific contribution, in the practical implications of the research findings. First, the inclusion of five perspectives on teaching and the TPI scale in university teacher education programmes could provide additional support to teachers in initiating a process of reflection on their teaching beliefs that guide and justify their work. This could further contribute to changing the initial beliefs of university teachers and making adequate changes to the teaching objectives in order to improve teaching practice (Chan, 1994). Taking into account the conceptual framework of five perspectives on teaching (Pratt, 1992), which speaks in favour of the justification of a pluralistic approach to teaching, meaning the view that there is no universal answer to the question of what 'good teaching' is, the results of this research can serve as guidelines for creating and modifying programmes for acquiring the teaching competencies of university teachers. Since the results of this research clarify the differences in perspectives on

teaching, this paper emphasises the need to consider different social, cultural, and epistemic contexts of higher education and their close connection with scientific research when designing activities related to the professional development of university teachers.

Future research that would address university teachers' beliefs, intentions, and actions should further gather data on teachers' daily practice using observational and interview techniques, including assessments by other teachers and students. Since this research examined the differences between assumptions and beliefs about the teaching of university teachers from different academic disciplines, future research should investigate the relationships between perspectives on teaching university teachers and other personal and socio-cultural variables.

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Validation of the Strategy for Determining the Numerical Rating of the Cognitive Complexity of Exam Items in the Field of Chemical Kinetics

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The main goal of this study was to validate the strategy for the assessment of the cognitive complexity of chemical kinetics exam items. The strategy included three steps: 1) assessment of the difficulty of concepts, 2) assessment of distractor value. and 3) assessment of concepts' interactivity. One of the tasks was to determine whether there were misconceptions by students that might have influenced their achievement. Eighty-seven students in the first year of secondary school participated in the study. A knowledge test was used as a research instrument to assess the performance, and a five-point Likert-type scale was used to evaluate the perceived mental effort. The strategy was validated using regression analysis from which significant correlation coefficients were obtained between selected variables: students' achievement and invested mental effort (dependent variables) and a numerical rating of cognitive complexity (independent variable).

Keywords: mental effort, performance, chemical equilibrium

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Potrjevanje strategije za določanje številčne ocene kognitivne zahtevnosti izpitnih nalog s področja kemijske kinetike

Saša Horvat, Dušica Rodic, Nevena Jović, Tamara Rončević in Snežana Babić-Kekez

Glavni cilj te raziskave je bil potrditev strategije za ocenjevanje kognitivne zahtevnosti izpitnih nalog iz kemijske kinetike. Postopek sestoji iz treh korakov, in sicer: 1) ocene težavnosti pojmov, 2) ocene vrednosti motečih dejavnikov, 3) ocene interaktivnosti konceptov. Ena izmed nalog je bila ugotoviti, ali so se pri učencih pojavile napačne predstave, ki bi lahko vplivale na njihov uspeh. V raziskavi je sodelovalo 87 srednješolcev 1. letnika. Preizkus znanja je bil uporabljen kot instrument zbiranja podatkov glede uspešnosti, obenem pa je bila uporabljena tudi 5-stopenjska lestvica Likertovega tipa, s katero so srednješolci ocenili zaznan miselni napor. Veljavnost je bila potrjena z regresijsko analizo; ta je pokazala statično značilne vrednosti korelacijskih koeficientov med izbranimi spremenljivkami: dosežki študentov in vložen miselni napor (odvisni spremenljivki) ter numerična ocena kognitivne zahtevnosti (neodvisna spremenljivka).

Ključne besede: miselni napor, dosežek, kemično ravnovesje

Introduction

As an experimental science, chemistry also includes computation in numerical problems and reading texts. Many students have difficulty with learning chemistry because they are required to have literacy competencies and the ability to solve numerical problems (Yunus & Ali, 2012). Teaching students to solve problems and finding an effective problem-solving strategy is an important task of education and modern research (Barczi, 2013). Students often have difficulties with problem-solving in chemistry due to insufficient knowledge, as well as the existence of alternative concepts and misconceptions (Taber, 2002). Many of the alternative concepts are related to the understanding of chemical substances, chemical kinetics, and chemical changes.

The chemical kinetics concept is included in the courses of general and physical chemistry and is closely related to thermodynamics and chemical equilibrium (Justi, 2002). Numerous misconceptions and misunderstandings of the concepts of chemical kinetics have been observed in students; many misconceptions are described in the paper by Bain & Towns (2016). Misconceptions about the law of mass action were observed in students (the rate of the chemical reaction is equal to the product of the concentration of reactants) (Çam et al., 2015). Students have problems with establishing the relationship between chemical kinetics and equilibrium concepts. Specifically, they believe that the equilibrium constant refers to the reaction rate (Sözbilir et al., 2010; Turányi & Tóth, 2013).

One reason for students' misunderstandings is that at the beginning of the study of chemistry in primary school, chemical reactions are observed through changes (colour, temperature, the appearance of bubbles, the sound of cracking, etc.). In this way, students adopt the notion that a chemical reaction has occurred. However, they are introduced to chemical equilibrium when they enter secondary school. Then a new concept appears: reversible reaction and the fact that the reaction does not have to take place to the end but can take place in the opposite direction. In Van Driel's research (2002), students see direct and reversible reactions as separate and independent. The back arrow used in illustrations of reversible reactions contributes to students viewing this reaction as two reactions. These results were confirmed with different ages of students (Banks, 1997; Gorodetsky & Gussarsky, 1986; Johnstone et al., 1977; Maskill & Cachapuz, 1989).

As a result of his research, Banerjee (1991) concluded that students directly relate the value of the equilibrium constant to the rate of a chemical reaction, believing that a higher value of the equilibrium constant means a faster

direct reaction. Many students do not understand that the equilibrium constant is a thermodynamic constant and depends on temperature (Gorodetsky & Gussarsky, 1986; Hackling & Garnett, 1985). Students also believe that Le Chatelier's principle can be used to predict the value of the equilibrium constant (Banerjee, 1991). Many students misinterpret Le Chatelier's principle in the field of chemical kinetics, especially regarding the effect of temperature on the rate of a chemical reaction (Turányi & Tóth, 2013).

The inability of students to calculate the chemical equilibrium constant may be an accidental error or misconception (Kousathana & Tsaparlis, 2002). Also, what confuses students are typical examples of chemical reaction equations (Tóth, 1999). In most Serbian textbooks, reactions that are given to students to solve the problem of chemical equilibrium are:

$$H_2 + I_2 \leftrightarrows 2HI \text{ or}$$
$$aA + bB \leftrightarrows cC + dD.$$

Cognitive complexity is one of the key factors influencing the ability to identify important connections between items within a complex problem and its solution. The concept of cognitive complexity is derived from George Kelly's Theory of Personal Constructs (1955). Cognitive complexity, as a dimension of personality, was introduced by Bieri (1955). The cognitive complexity of a problem task is a complex construct comprising the objective complexity and difficulty of the task (Kalyuga, 2008; van Gog et al., 2011). When solving problem tasks with a high level of cognitive complexity, differences in achievement and the assessment of mental effort between more and less successful students could be observed (Kim et al., 2014).

Research has shown that the level of cognitive complexity can predict the achievement of a problem task (Embretson & Daniel, 2008). Based on these results, manipulations in the level of cognitive complexity of the problem task can determine the difficulty of the problem (Daniel & Embretson, 2010). As far as chemical education is concerned, cognitive complexity is positively correlated with the difficulty of the problem; at the same time, increasing the cognitive complexity of the problem increases mental effort (Horvat et al., 2016; 2017, 2020, 2021; Knaus et al., 2011; Raker et al., 2013).

The design and use of a reliable instrument to assess the level of cognitive complexity for chemical tasks are very important. The application of an instrument that provides an easy way to assess the numerical rating of cognitive complexity is essential for the quantification of cognitive requirements in solving chemistry exam items (Knaus et al., 2011). The first rubric was created by Knaus et al. (2011). The developed rubrics are based on complexity theory

(Goldreich, 2008; Pippenger, 1978), which can explain a multi-connected system, and the intrinsic cognitive load construct (Sweller et al., 2011), which can explain interactivity between them.

To calculate the numerical rating of the cognitive complexity of the task, experts estimate the number of concepts included in exam items as easy, medium, or difficult from the perspective of students. Since all the concepts that are represented in the problem task are considered, the rating of the difficulty of the task is determined by applying the rubric. After determining the difficulty rating of the concepts, the interactivity of the concepts is assessed. Interactivity is assessed when there is an interdependence of concepts within the task. It is usually assessed by calculating the number of concepts included in exam items. By adding the values of the concept difficulty rating and interactivity, an overall rating of the cognitive complexity is obtained.

As Knaus et al. (2011) pointed out, good effects associated with the use of the instruments include improved knowledge about the cognitive complexity of chemical tasks and as a means of characterisation of test content for the measurement of cognitive development. The created rubrics represent a good way to determine the cognitive complexity of exam items (Knaus et al., 2011; Raker et al., 2013).

A significant contribution of the cognitive complexity rating rubrics is reflected in the development of a methodology for the logical and structured organisation of chemical concepts, which leads to more successful learning (Segedinac et al., 2018). The construction of an invalid instrument for measuring cognitive complexity could lead to invalid test results. Therefore, the development of a valid instrument is of crucial importance.

Research problem and aim

The previously described rubrics have proven to be reliable and valid tools for application in chemistry education (Knaus et al., 2011; Raker et al., 2013). However, due to the specificity of domains in chemistry, these rubrics should be further improved. They are developed in the form of a table for assessing the difficulty of the concepts and are of great importance because they are objective and precisely defined by experts (Horvat et al., 2016; 2017, 2020, 2021). In this study, we have developed a table for the domain of Chemical Kinetics.

The main objective of this research is to validate the table for assessing cognitive complexity in chemical kinetics problems. In chemical equilibrium, only the kinetic aspect and Le Chatelier's principle were observed. To validate

the proposed strategy, it was necessary to statistically confirm the dependences of students' achievement and mental effort from calculated cognitive complexity.

From the research problem and aim, the following research questions were derived:

- How does an increase in the numerical rating of cognitive complexity affect students' achievements?
- How does an increase in the numerical rating of cognitive complexity affects students' invested mental effort?
- How does an increase in students' invested mental effort affects students' achievements?
- What factors affect students' achievement?

From the defined research questions, three hypotheses were set:

- An increase in the numerical rating of cognitive complexity leads to a decrease in students' achievements and an increase in invested mental effort;
- An increase in students' invested mental effort leads to a decrease in students' achievements.;
- Students possess misconceptions that affect the achievement of the students.

Method

Participants

The field of chemical kinetics and chemical equilibrium is studied in the subject of chemistry in the first year in the textbooks of the secondary schools with general, natural-mathematical, and socio-linguistic emphases. Eighty-seven participants students in the first year of the secondary school Gymnasium 'Svetozar Marković' participated in this study. They studied the concepts of chemical kinetics during the second semester of the 2018/19 school year. The research was conducted in June, at the end of the school year. The students voluntarily took part in this study.

Instrument

As a research instrument, the Knowledge Test was used, which was specially created for the needs of the research. The time provided for the test solving was 45 minutes. The test consisted of five problem tasks. A completely solved task was scored with one point, and tasks that were partially solved

were scored by item requirements. The third task contained only one item, and the fifth task had two items, while the first, second and fourth had three items each. The maximum score on the test was five points. The tasks of this test were taken from 'Zbirka zadataka iz hemije za I II razred gimnazije i srednje škole - Collection of tasks in chemistry for the first and second grade of gymnasiums and high schools (English)' (Nikolajević & Šurjanović, 2011). Also, when the procedure for solving the arithmetic task had been completely correct, and the student had made a mistake in rounding the decimal numbers, such a task was scored correctly because it was considered that the student had completely mastered the concepts represented in this task.

The knowledge test also served as an instrument for the evaluation of invested mental effort by including a 5-point Likert scale, as proposed by Knaus et al. (2011) and Raker et al. (2013). During the statistical processing of the results, the appropriate numerical values were assigned for descriptive estimates of the assessment. Specifically, 'very easy', 'easy', 'neither difficult nor easy', 'difficult', and 'very difficult' were represented as numerical values 1, 2, 3, 4, and 5, respectively.

The obtained results were processed by the statistical software program IBM SPSS Statistics 24.

Instrument validation

Test quality was assessed by pre-test and post-test quality assurance parameters. The model was described by Segedinac et al. (2011). Pre-test quality assurance parameters had been determined by four experts whose specific field is chemistry education. The test was assessed as valid as the tasks were concurrent with the subject syllabus and recommended textbooks. The test tasks were assessed by the experts as diverse, with precisely clearly established requirements and meaningful sentences that satisfy the linguistic standards.

Basic statistical parameters: reliability coefficient, task discrimination index, test discrimination index, task difficulty index and test difficulty index were used as post-test assurance parameters. Reliability was calculated as a measure of internal consistency and was expressed as the Cronbach α coefficient. A value of Cronbach α coefficient of 0.58 for achievement represents a satisfactory coefficient of reliability (Taber, 2018) as it was appropriate for the present number of exam items (Loewenthal, 2004; Moss et al., 1998; Tavakol & Dennick, 2011; Taber, 2018). For self-assessed mental effort, the value of the Cronbach α coefficient was 0.71, which indicated high reliability (Jonsson & Svingby, 2007; Taber, 2018). The task difficulty index was calculated as the average achievement on the task, while the test discrimination index was calculated

as the average achievement of all six tasks on the test. A rule of thumb was used to interpret the values (Towns, 2014). Task difficulty indices were ranging from 6.90% to 34.48% (the average value is 22.53%, and the test was characterised as difficult). Two tasks had a difficulty index of 25–75%, which makes them moderate tasks (Pande et al., 2013; Towns, 2014). Three tasks had a difficulty index of less than 25% and were categorised as difficult tasks. When observed, the difficulty of items was in the range of 0% to 54.02%. Eight items had a difficulty index of less than 25%, while four items had difficulty indices of 25–75%. Task and item discrimination indices were calculated using the extreme group method. The sample was divided into two groups using the average score, creating an upper half and a lower half. Item discrimination indices were obtained from the subtraction of the average score of 30% of students in the upper half and lower half (Towns, 2014). The test discrimination index was obtained as the average value of all single-task discrimination indices. Task discrimination indices had values from 0.17 to 0.70 (mean 0.50 describes an excellent discrimination index). Four tasks were characterised as excellent based on a discrimination index higher than 0.4. One task had a poor discrimination index of 0.17 (Towns, 2014; Zubairi & Kassim, 2006). This task should be revised or discarded for the next use. The discrimination indices of items were in the range of 0 to 0.91. If we consider parts of tasks (i.e., items), seven of them have an excellent discrimination index (higher than 0.4), four of them had a discrimination index in the range of 0.2 to 0.4, which were good items that can be improved as needed, while only one item had a poor discrimination index of 0 and should be rejected. The created test used in this research, as far as the post-test quality guarantee assurance parameters were concerned, showed good metric characteristics.

The mean value of the mental effort is 3.21, which means that the test can be characterised as 'neither difficult nor easy' according to the applied Likert scale. The basic statistical parameters of the test for student achievement are presented in Table 1.

Table 1
Basic statistical parameters

Parameter	Students' achievement[1]	Students' ratings of mental effort[2]
Average	1.53	3.21
Standard deviation	1.07	0.69
Standard skewness	0.82	-0.45
Standard kurtosis	0.21	2.87
Minimum	0.00	1.00
Maximum	4.17	5.00
Range	4.17	4.00

Note. [1]Achievement range 0–5. [2]Mental effort range 1–5.

The kurtosis and skewness values were considered, indicating a normal distribution of achievements at the level of trust of 95%. However, this was not confirmed with an additional Kolmogorov-Smirnov test ($D = 0.14$; $p < .001$). The analysis of z-scores or nontypical values (outliers) revealed the existence of several scores greater than ± 2.58 of the maximum 1% of allowed z-scores, which additionally cannot satisfy the criterion of normal distribution (Mayers, 2013). The values of the coefficients of skewness and kurtosis show that the normal distribution is not present in the mental effort estimates. The Kolmogorov-Smirnov test ($D = 0.18$; $p < .001$) also confirmed this assumption that the normal distribution was not presented.

The test was validated by observing the relation between students' achievement and invested mental effort. As neither the achievement nor the mental effort of the respondents satisfies the normal distribution, the dependence of the student's achievement from the average mental effort through the non-parametric Spearman's ρ-coefficient was observed.

This dependence is described by the equation Achievement= 0.37-0.04×Mental effort; it is described as a moderate correlation ($r_s = -0.29$; $p = 0.01$). The higher invested mental effort cause a decrease in students' achievements. Cohen's d-effect size is 'much larger than typical' (1,86), so an attempt to replicate the study with a larger sample may be justified (Morgan et al., 2011). This had already been confirmed in studies that had the topic of validation of procedures for the assessment of problems' cognitive complexity (Horvat et al., 2016, 2017, 2020, 2021; Knaus et al., 2011; Raker et al., 2013).

Research design

Based on the set research aim and problems, the research tasks were defined as follows:

- Creation of a table for assessing the difficulty of the concepts of exam items in the field of chemical kinetics and chemical equilibrium;
- Determining the numerical rating of the difficulty of the concepts included in the exam items of the created test;
- Conducting a test;
- Statistical processing of results; and
- Analysis of test results.

Additionally, after a detailed analysis of the students' answers on test items, some misconceptions that have had influenced students' test results were identified and analysed.

Results

Table creation

To fulfil the aim of this research, a table for assessing the difficulty of the concepts represented in the area of chemical kinetics and chemical equilibrium has been created. In addition to the concepts that can be represented in the problems of chemical kinetics and chemical equilibrium and their difficulty level, this table contains distractors and an assessment of the interactivity of concepts. The created table is represented in Table 2. Chemical equilibrium was observed only from the kinetic side and not from the thermodynamic side. The principle for using this table is simple and objective. The total cognitive complexity of the task is expressed as a numerical value.

Table 2

Table for assessing the difficulty of the concepts in chemical kinetics problems

CHEMICAL KINETICS	Difficulty
An expression for the rate of a chemical reaction and the law of mass action	easy
Calculation of the rate of a chemical reaction	medium
Calculation of the rate of a chemical reaction by applying the law of mass action	difficult
CHEMICAL EQUILIBRIUM	
Expression for the equilibrium constant, Le Chatelier's principle	easy
Calculation of equilibrium constant and equilibrium concentrations	medium
Calculation of the initial concentrations of reactants	difficult

ADDITIONAL CONCEPTS	
Homogeneous reactions - class of chemical reactions that occur in a single gaseous phase (g) or aqueous phases (aq)	0
Heterogeneous reactions - class of chemical reactions where one of the reactants occurs in a liquid (l) or a solid (s)	1
INTERACTIVITY	
Task consists of 2 concepts	0
Task consists 3 concepts	1
Task consists of more than 3 concepts	2

All the concepts needed to solve problem tasks in the field of chemical kinetics are assessed as easy, medium-difficult, or difficult. The difficulty ratings of concepts were determined through a panel discussion by a group of four experts, all of whom were university professors. The assessment of the difficulty of each concept was assessed from the student's perspective. The experts assessed the difficulty of each concept independently. All disagreements in the assessment between experts were eliminated through discussion.

The numerical difficulty rating was obtained by estimating the difficulty of each represented concept and using the rubrics by Knaus et al. (2011) and Raker et al. (2013). The concept of chemical kinetics can be assessed as easy, medium, or difficult. The concept was considered 'easy' if the student needed to write an expression for the rate of a chemical reaction for a particular reactant or reaction product. Also, writing an expression for the rate of a chemical reaction by applying the law of mass action was an easy concept. If the task aim was to calculate the rate of the chemical reaction by varying the concentrations of the reactants and products of the reaction over time, the concept was considered as a 'medium' difficulty concept. A 'difficult' concept implied that the student could successfully apply the law of mass action and calculate the chemical reaction rate constant to determine the change in the rate of a chemical reaction depending on the change in concentration or change in pressure in the chemical reaction.

Another group of concepts represented in Table 3 are concepts of chemical equilibrium. This concept was considered 'easy' if students were asked to write an expression for the equilibrium constant of a chemical reaction. The application of Le Chatelier's principle (i.e., the influence of change on the chemical equilibrium: concentration, pressure or temperature) was considered an 'easy' concept. If students were requested to calculate the chemical equilibrium constant or equilibrium concentration of one of the participants in the reaction, it was considered a 'medium-difficult' concept. A 'difficult' concept involves calculations with initial concentrations of reactants.

In the tasks, additional concepts were considered as the aggregate state of the participants in the chemical reaction. Reactants that were in the gaseous state (g) or as solutes (aq) are included in the expressions for calculating the equilibrium constant and the expressions for the rate of the chemical reaction as a rule. Reactants in the liquid (l) or solid-state (s) were not taken into account. If the participants in the chemical reaction were in a gaseous state or were dissolved substances (homogeneous reaction), the value of additional concepts is 0. However, if one of the substances was solid or in a liquid state (heterogeneous reaction), its concentration or partial pressure could not be changed; the additional concept had a value of 1. In this manner, a student's lucky guess was eliminated, because if he omitted a reactant that is in a liquid or solid state, it could be considered that he has mastered the concepts of chemical kinetics and equilibrium.

Adding to the difficulty of the concepts, the value of distractors' final step for the assessment of cognitive complexity was the determination of interactivity. It was assessed based on the number of concepts. In problems with two concepts, the value of interactivity was 0; in problems with three concepts, it had 1; it had a value of 2, in problems with more than three concepts.

Cognitive complexity determination

After estimating the difficulty of the concepts represented in the exam items, determining the value of additional concepts and evaluating the interactivity, a numerical rating of cognitive complexity was obtained using the method proposed by Knaus et al. (2011) and Raker et al. (2013). A concrete example is shown below:

In the reaction system $CO(g) + Cl_2(g) \rightarrow COCl_2(g)$*, the CO concentration was increased from .3 to 1.2 mol/dm³ and the chlorine concentration from .2 to .6 mol/dm³. How many times did the reaction rate increase?*

This task contains only one item, and it can be solved in three simple steps: calculating the rate of the chemical reaction at the beginning of the chemical reaction, then calculating the rate of the chemical reaction after a change in concentrations, and finally determining the ratio of the rates of chemical reactions. This task contains two concepts from chemical kinetics. A numerical rating of cognitive complexity was obtained in this way:

- Law of mass action - a concept that is 'easy' according to Table 3 and had the value of the difficulty of concept 1 according to the method by Knaus et al. (2011) and Raker et al. (2013);
- Calculation of the rate of a chemical reaction by applying the law of mass action - difficulty concept according to Table 3 and has the value of the

difficulty of concept 4 according to the method by Knaus et al. (2011) and Raker et al. (2013);

- Since it is a homogeneous reaction, the additional concept value has a value of 0;
- The problem has two concepts, so the value of interactivity is 0.

By adding all the numerical values, the overall rating of cognitive complexity of 5 was obtained.

The following example is a task in the field of chemical equilibrium:

In system A(aq) + 2B (aq) ⇆ C(aq) + D(l) equilibrium concentrations are [A]=0.06 mol/dm³, [B]=1.2 mol/dm³, [C]=2.16 mol/dm³, [D]=2.16 mol/dm³. Calculate the equilibrium constant of this reaction as well as the initial concentrations of the reactants.

This task has two items. The first item involves the calculation of the equilibrium constant. When calculating the equilibrium constant, students need to pay attention because the expression does not take into account the concentration of product D, which is in a liquid state. At the beginning of the task, it can be seen that a heterogeneous reaction is present in this task. The second item involves the calculation of starting concentrations. The initial concentrations of the products are always zero because they have not formed yet in a chemical reaction. The initial concentrations of the reactants are obtained by adding the equilibrium concentrations to the participating concentration in the reaction.

Based on Table 3, in the same manner as in the previous example, the difficulty was determined. The concepts represented in the task are as follows:

- Calculation of equilibrium constant - a concept that is of medium difficulty according to Table 3 and has the value of the difficulty of concept 2 according to the method of Raker et al. (2013); and
- Calculation of the initial concentrations of reactants - a concept considered difficult according to Table 3 and has the value of the difficulty of concept 4 according to the method by Knaus et al. (2011) and Raker et al. (2013).
- This task has an additional concept that has a value of 1 and two concepts are represented, so the interactivity was evaluated with 0.

By adding all the numerical values, a numerical rating of cognitive complexity of 7 was obtained. Likewise, the numerical rating of cognitive complexity was successfully assessed for other exam items represented in the test. The calculated values were in the range of 4 to 7.

Procedure validation

As the distributions of students' achievements and mental effort did not satisfy the criteria of normal distribution, validation of this procedure is not possible by linear regression. Therefore, instead of the Pearson coefficient, the correlation between the variables was performed using the Spearman ρ-correlation coefficient, which is used when the distribution is not normal. All 435 items were observed. The number of items was obtained by multiplying the number of students by the number of tasks. In the first phase of validation, the dependence of students' achievement (independent variable) on cognitive complexity (dependent variable) was observed.

The obtained coefficients (r_s = -0.33; $p < .001$) indicate a moderate correlation between examined variables (Evans, 1996). The correlation of this dependence is Achievement = .70 - .09 × Cognitive complexity. Although the correlation coefficient is small and Cohen's d-effect size value is larger than typical (3.28), the correlation is significant because it was made on the basis of the correlation of a large number of variables (Brace et al., 2006; Cohen, 1988; Morgan et al., 2011), so it is statistically significant considering the number of items.

The next step of the procedure validation was to examine whether there is a correlation between students' self-invested mental effort and cognitive complexity. The correlation of this dependence is Mental effort = 2.10 + 0.21 × Cognitive complexity.

The obtained coefficients (r_s = .22; $p < .001$) indicate a weak but statistically significant correlation between examined variables (Evans, 1996). Cohen's d effect size value shows a larger effect size than typical (1.75), and it is a significant correlation because it was made on the basis of the correlation of a large number of variables (Morgan et al., 2011).

Misconception identification

The cause of the low achievement values can also be misconceptions that were observed in students who participated in the research. Tests have been used for many years as assessment tools for the identification of students' misconceptions in science. The test questions developed for this purpose thus far are available in many forms, such as interview, multiple-choice questions, open-ended questions, multi-tier questions, and others (Soeharto et al., 2019). Tests such as multiple-choice tests (32.23%) and multiple-tier tests (33.06%) are used as diagnostic tools for the identification of misconceptions in more than 65% of research papers. In contrast, open-ended questions give students the freedom to think and write their ideas but also cause difficulties in interpreting and analysing student answers, as some response answers may not be useful,

and in reviewing answers, which might be time-consuming (Soeharto et al., 2019, Soeharto & Csapó, 2021). When the frequency of wrong answers is higher than 10%, it can be considered a misconception (Yan & Subramaniam, 2018).

The first task contained three items and required writing expressions for equilibrium constants for given chemical reactions with stoichiometric coefficients. The achievement by items was 24% in the first and third items and 54% in the second. The reason for this difference in achievement is precisely the misconception observed in students. In 21.84% of the respondents, it was observed that they did not include participants that are chemical elements in the expression for the equilibrium constant. This is in line with the previous research (Çakmakci, 2010) in which it was observed that students mix the concepts of enthalpy and the rate of a chemical reaction. Specifically, the students are probably confused by the fact that an element in its standard state has a standard enthalpy of formation of 0 kJ/mol, and they are not entered into the expressions for the calculation of the enthalpy of a chemical reaction. It was also seen that when students were writing the expression for the equilibrium constant, the equilibrium concentration did not agree with the stoichiometric coefficient (18.39%), and instead of multiplying, the students added the equilibrium concentrations of reactants and reaction products (12.64% of students). This is also related to the mixing of the concept of enthalpy and chemical kinetics. I.e., in the curriculum, chemical kinetics comes immediately after thermochemistry teaching units, so probably many of the students fail to observe these two concepts separately.

The second task also contained three items. This task required writing expressions for the rate of direct chemical reactions by applying the law of mass action. The achievement by items was 21% in the first, 6% in the second and 15% in the third item. This task contained additional concepts in all three items, specifically that chemical reactions were heterogeneous reactions. The low achievement is caused precisely by the fact that the students included in the expressions for the rate of the chemical reaction the participants of the chemical reaction that are in a liquid or solid-state (Kousathana & Tsaparlis, 2002). This misconception was observed in 14.94% of students. In this task, instead of writing expressions for the rate of a chemical reaction, students wrote expressions for the equilibrium constant (19.54% of students) or an expression for the rate of a chemical reaction by changing the concentration of reactants per unit time (16.09% of students). This result had previously been mentioned in numerous studies in which it was seen that students combine the concepts of chemical kinetics and equilibrium, believe that the equilibrium constant refers to the rate of a chemical reaction, and do not understand the law of mass action (Çam

et al., 2015; Sözbilir et al., 2010; Turányi & Tóth, 2013 cited in Bain & Towns, 2016). The lowest achievement was in the second item, for which students were required to write the rate of a chemical reaction by applying the law of mass action to the following chemical reaction:

$$2\ H_2O_2(l) \leftrightarrows 2\ H_2O(l) + O_2(g)$$

Since hydrogen peroxide is a liquid substance, according to the law of mass action, its concentration cannot be changed, so the rate of a direct chemical reaction is equal to the rate constant of the chemical reaction:

$$v = k.$$

However, in 21.83% of students, a misconception was observed that they expressed the rate of direct chemical reaction as the rate of reverse chemical reaction:

$$v = k[O_2]$$

where it can be seen that the students calculated with the oxygen concentration probably because it was the only participant in the reaction in the gaseous state. Students' problems with applying the law of mass action in chemical kinetics have long been observed (BouJaoude,1993). This misconception may be because students think that the rate of direct and reverse chemical reactions is equal (Bain & Towns, 2016; Cliff, 2009; Hackling & Garnett, 1985;).

The third task had one item and the average achievement was 24%. This was a computational task in which the students needed to calculate how many times the rate of a chemical reaction had changed by applying the law of mass action.

The fourth task contained three items, requiring students to determine how an increase in temperature (item 1), a decrease in pressure (item 2), and an increase in the concentration of one of the reactants (item 3) affect the concentration of the reaction product of the exothermic chemical reaction. The achievement by items was 29%, 39%, and 36%, respectively. The misconception that an increase in temperature favours an exothermic chemical reaction had already been observed many times in previous research, which can be found in Bain and Towns (2016). This misconception was observed in 24.13% of students who participated in the study.

The fifth task contained two items. The first item referred to the calculation of the value of the equilibrium constant in a chemical reaction when one reaction product is in a liquid state. The achievement on this item was 14%. The second item concerned the calculation of the initial concentrations of the reactants. The achievement on this item was 0%. This is cognitively the most

complex task, the task with the lowest achievement of the respondents and the highest amount of mental effort of the students. Many of the students did not even attempt to do this task. It has been noted that students' problems also occur when calculating initial concentrations (Kalainoff et al., 2012).

If we recall the research questions and hypotheses, we can conclude that they were justified. Increasing the numerical rating of cognitive complexity has led to lower student achievement and has imposed higher mental effort on students, which is fully consistent with the results of the previously published research (Horvat et al., 2016, 2017, 2020, 2021; Knaus et al., 2011; Raker et al., 2013). Careful selection of tasks, with the gradual introduction of new concepts that students have just mastered, can lead to a more permanent formation of knowledge structures and deeper understanding. Using this procedure, teachers can gradually make problems more complex. Thus, they can foster the development of students' problem-solving skills while preventing the efficiency of the teaching process from decreasing at any time due to the overload of working memory. Designing teaching materials of different levels of complexity is a better way to assess learning outcomes and re-examine cognitive load through mental effort measures. It is also necessary for teachers to consider problem-solving strategies used by their students because the numerical solution of the problem does not provide insight into the knowledge of concepts and students' understanding of concepts (BouJaoude & Barakat, 2000). This procedure and the test provide us with valuable information: by carefully reviewing students' answers to solved tasks, teachers can see which concepts represent problems for students and modify the already created table and procedure to attempt to enhance students' achievements.

Conclusions and implications

The aim of this research was first to create and then to validate a strategy for the assessment of the numerical rating of cognitive complexity in the domain of chemical kinetics. The first phase of validation was the validation of the instrument itself, which showed a good metric characteristic in terms of the discrimination index (0.50). Four tasks had an excellent discrimination index, while one task had a poor discrimination index. The test was difficult, and the test difficulty index was 22.53%.

The second phase of validation was to examine the correlations between students' achievement and their self-perceived mental effort from the numerical rating of the cognitive complexity of the exam items. The cognitive complexity of the problem was assessed by creating a table for assessing the difficulty of the

concepts in chemical kinetics problems. In addition to difficulty and interactivity, this table contained additional concepts; it had previously been developed, and the numerical difficulty ratings were calculated using the cognitive complexity-rating rubric, which had previously been developed (Knaus et al., 2011; Raker et al., 2013). Since students' achievement and mental effort do not satisfy the normal distribution, the validity of the procedure was performed by correlation analysis via nonparametric Spearman's ρ-coefficient, with the obtained values of the correlation coefficient indicating a weak and moderate correlation between variables that is statistically significant.

The development of such a strategy for the assessment of the numerical rating of cognitive complexity enables the assessment of the difficulty of concepts included in exam items in different chemistry domains, such as the chemical kinetic one in this research. In this way, teachers can easily estimate the cognitive complexity of exam items, which allows them to control the mastered concepts and the complexity of the problem. This procedure makes it possible to gradually adopt chemical concepts without overloading students' working memory and, at the same time, to achieve the best possible achievement. By analysing the students' achievement, it was observed that the achievement decreases with the increase of the numerical rating of cognitive complexity, and at the same time, mental effort is increased.

Numerous misconceptions on the part of students were seen in the analysis of their results. Some of them were that students mixed the concepts of enthalpy and kinetics, did not understand the law of mass action, misunderstood the concepts of exothermic reactions, and they were not skilled at solving numerical problems.

A further direction of research could be the understanding of students' misconceptions and the possibility of correcting them. This could be done by applying multi-layered tests, interviews with students or by applying an eye-tracking technique.

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University Preparation of Kindergarten Teachers for English Teaching in the Czech Republic

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An ever-increasing trend of early foreign language teaching requires adequate responses to the university training of future kindergarten teachers. However, research in this area, including policies, suggests that the situation is not entirely satisfactory. This paper aims to determine the level of preparation of future teachers for teaching English to pre-primary children at individual universities in the Czech Republic. It presents findings obtained through quantitative content analysis of the syllabi of eight universities that provide education in the field of teacher training for kindergartens and focus on the preparation of future teachers for English tuition. The results show that courses for English tuition in kindergarten are not implemented by every university. Universities differ in their emphasis on foreign language tuition in kindergarten, which is reflected in the number and content of provided courses.

Keywords: early foreign language teaching, English language, preschool teacher training

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Beata Horníčková

Čedalje močnejši trend zgodnjega poučevanja tujih jezikov zahteva primeren odziv visokošolskega usposabljanja bodočih vzgojiteljev predšolskih otrok. Raziskave s tega področja, vključno s politikami, kažejo na to, da stanje ni povsem zadovoljivo. Ta prispevek skuša prikazati raven priprav bodočih vzgojiteljev za poučevanje angleščine predšolskih otrok na posameznih čeških univerzah. Predstavi ugotovitve, pridobljene s kvalitativno vsebinsko analizo učnih načrtov osmih univerz, ki ponujajo izobraževalni program predšolske vzgoje in se usmerjajo na usposabljanje za poučevanje angleščine. Rezultati kažejo, da se poučevanje angleščine predšolskih otrok ne izvaja na vsaki univerzi, pri čemer se ustanove razlikujejo po poudarkih, ki ga dajejo poučevanju tujih jezikov na vrtčevski ravni, kar se odraža tudi v številu in vsebini ponujenih predmetov.

Ključne besede: zgodnje poučevanje tujega jezika, angleški jezik, predšolska vzgoja

Introduction

Due to the increasing emphasis on the early start of foreign language teaching, there is a naturally increasing need for qualified teachers in this area (Pokrivčáková, 2012). According to recent findings (Cameron, 2003; Hyes, 2014; Maroušková, 2013; Murphy et al., 2016), the level of qualification is not fully adequate. In general, there are misconceptions regarding the required qualifications for foreign language teaching in preschool education.

The importance of a quality language model in early foreign language teaching was mentioned by Hanušová and Najvar (2006), who claim that the younger the child is, the more important the qualification of the teacher is. According to Edelenbos et al. (2006), an early start does not guarantee success in the language. In addition to a supportive environment and continuity, quality teaching is one of the key factors in successful English teaching.

According to the European Commission's Strategic Framework for Educational and Training (2011), the qualification profile of kindergarten teachers has long been considered a critical factor for teaching English. The need to start a discussion on the content of kindergarten teacher education and the possible requirement for their qualifications is also mentioned in the document *Strategy of the Educational Policy of the Czech Republic until 2020* (Ministry of Education, Youth and Sports of the Czech Republic, 2014). From 2005 to 2008, the *National Language Teaching Plan with an Action Plan* included requirements aimed at improving the qualification situation, specifically 'to include English in the program of training kindergarten teachers in pedagogical high schools and pedagogical faculties' and 'to include the propaedeutics of foreign language teaching to the Framework Educational Program for Preschool Education' (Ministry of Education, Youth and Sports of the Czech Republic, 2005, p. 1). However, many secondary schools and universities do not follow these requirements.

The low level of qualifications is also aided by the fact that the requirements for foreign language qualifications are not formally clearly defined (Černá, 2015). While, for example, in Malta, Slovakia, or Poland, these requirements are set by law (Ministry of Education and Employment of Malta, 2012; Ministry of Education, Science, Research and Sports of the Slovak Republic, 2020; Ministry of National Education in Poland, 2017), no similar document is valid in the Czech Republic. The Czech School Inspectorate[2] (henceforward CSI) has long been drawing attention to this fact (CSI, 2012, 2013).

2 The Czech School Inspectorate is an administrative office of the Czech Republic with nationwide competence in the field of education, where it performs independent inspection activities. The Czech School Inspectorate was established by Act No. 561/2004 Coll., for preschool, primary, secondary, higher vocational, and other educational programmes. It is an organisational component of the state.

At the same time, English is a rising trend in kindergartens (CSI, 2015). It is very difficult to determine the exact number of kindergartens offering English, as schools can change and update their programmes. The situation is all the more difficult to map because English is offered by both state kindergartens and private ones. An inspection investigation carried out by the Czech School Inspectorate in 2015 found that out of 770 kindergartens investigated, 472 schools provide language education in the form of a club or as part of their school education program. Just as the number of kindergartens is increasing, of which there are currently 5,349 in the Czech Republic (Ministry of Education, Youth and Sports of the Czech Republic, 2022), so is the offer of English in these facilities. The number of kindergartens where English is a direct part of the school education programme has been increasing, according to the CSI survey (2013). English can also be implemented in the form of an interest group within a kindergarten, where external lecturers most often teach, and these courses are charged, or in the form of groups that are free of charge and are led by kindergarten teachers. English is the priority foreign language offered by kindergartens, while parents show little interest in German, Polish, or other foreign languages (CSI, 2015).

In contrast, kindergartens that did not offer a foreign language stated that the main reason was that the teachers did not have an adequate level of English. In addition, there are also kindergarten teachers who, although they have an adequate language level, have not completed specialised training in the field of language propaedeutics. Thus, even if they knew a foreign language sufficiently, they did not always have to master the methods and procedures suitable for preschool education fully. Particularly alarming are the figures that over 44% of teachers have no knowledge of the English language at all, and 35% have only a passive knowledge of English (Andrys & Janotová, 2013).

It is also necessary to look at this issue of foreign language education in kindergarten through a bottom-up perspective, in which kindergarten teachers (former students of pedagogical faculties) evaluate foreign language training; retrospectively, this evaluation is perceived and reflected in syllabi. However, very little research has tended to focus on this type of perspective.

Nevertheless, Dagarin Fojkar and Skubic (2017) dealt with the concept of early foreign language teaching in kindergarten from the point of view of students of the Faculty of Education, University of Ljubljana, Slovenia. They found out that students' awareness increased depending on their year of study. Third-year students were more aware of the importance of quality preparation for foreign language teaching in kindergarten than lower-grade students. At the same time, students found methodology to be the most important attribute of

university preparation. Kelly et al. (2004) consider the knowledge of methodology as a necessary basis in foreign language teaching while providing teachers with a basis for the creative and critical use of various teaching theories. Another finding is that primarily third-year students considered it important to be bilingual and therefore suggested that an English course at the faculty should be obligatory, not optional.

A possible solution in the form of the inclusion of preparation for early foreign language education is offered by Widlok et al. (2010), who formulated recommendations for increasing the foreign language competence of kindergarten teachers. Teachers for early language acquisition should be trained in specific fields of study focused on children's language teaching. This study should be focused on foreign language competencies and provide theoretical foundations, supplemented by competencies for the practical use of a foreign language. The foreign language should be used as often as possible during the study and should thus become 'working'.[3] Teachers should have language levels B2 to C1 of the Common European Framework of Reference for Languages so that children have the most authentic language model possible. The study should be considered interculturally: both languages and cultures should be taken into account, which would be related to each other. To understand foreign language learning in a broader context, students should be given the opportunity to learn about relevant language developments depending on the age of the learner. This may include, for example, the study of psycholinguistics, because understanding language development and how it is learned is the basis for effective foreign language teaching. This information would be discussed in the context of one's professional situation. Preparation should also be devoted to the practical implementation of multilingualism didactics, which means taking into account and utilising all the languages that potentially exist in the learning group. Students should also learn to use any previous experience of children with language learning. Students would verify their acquired theoretical knowledge and skills during internships in kindergartens. This would test teaching principles and methods and reflect them critically. As part of their studies, students should become familiar with language resources for important children's topics and situations. A critical point is to enable a study stay abroad, ideally with a practice focused on teaching a foreign language to preschool children (Widlok et al., 2010). In comparison with other authors, qualification requirements for teachers of English in kindergarten can be

3 The concept of working or procedural language is mostly used in an organisation or group in which people who have different mother tongues come into contact. Communication in these groups becomes more efficient thanks to the working language. In this context, English as a working language is thought of as a way to make English learning more efficient, where students are encouraged to use English as much as possible and thus improve their level.

mentioned from the point of view of Vos (2008), who includes knowledge of the language, knowledge of analysing and interpreting language, knowledge of foreign language teaching principles, ability to create opportunities for all children, knowledge of appropriate methodologies for different age groups, understanding of linguistic diversity, skills to coordinate research and available resources, and the ability to plan pedagogical processes.

Requirements for further research into the issue of acquiring the necessary knowledge and competencies for teaching English in preschool facilities at universities were formulated. According to Pokrivčáková (2017), the current situation brings new tasks and challenges for teacher training universities and calls for innovations in existing initial teacher education programs. She asserts that these innovations should be based, among other things, on the perception and evaluation of higher education students.

These innovations in teacher programs are needed in the Czech Republic for several reasons. The primary reason is the long-term problem of the teachers' insufficient level of English, associated with no or little knowledge of propaedeutics, didactics, methodology, or psycholinguistics of teaching English to children of preschool age. The second reason is the social need, which is formulated in strategic documents. The third reason is the effort to fully utilise the learning potential of preschool children, which, however, requires the guidance of a professionally trained teacher in this area. The fourth reason is that knowledge of a foreign language is increasingly important; therefore, language knowledge and skills should be a clear part of the profile of a university graduate in a teaching programme.

This research attempts to answer how foreign language training is implemented in university syllabi and how this training is viewed by teachers who have completed it. This aim is fulfilled by a qualitative content analysis of the syllabi of universities with programmes of teaching for kindergartens in the Czech Republic. These theoretical findings are complemented by statements of teachers from kindergarten, which served to fulfil another research aim: to determine the opinions of teachers on university preparation for introducing children to English. The research focused only on students at Tomas Bata University in Zlín and thus allowed following the preparation of university students through multiple perspectives.

The following objectives guided the research:

- To determine the level of preparation of future teachers for acquainting children with English at individual universities in the Czech Republic.
- To compare the future teachers' preparation for acquainting children with English in kindergarten.

Method

For the analysis, the syllabi of courses for kindergarten and preschool pedagogy from eight public universities in the Czech Republic that offer bachelor's or master's courses were used. In total, 31 subjects in the bachelor's study and 4 subjects in the master's study were analysed. The lower number of subjects in the master's study is because most universities offer follow-up master's studies in preschool education, but this study does not include subjects aimed at improving students' language competence or acquiring knowledge and skills in foreign language didactics for preschool children. All syllabi are freely available on the websites of individual universities (jcu.cz, muni.cz, osu.cz, uhk.cz, ujep.cz, upol.cz, utb.cz, zcu.cz). The universities that were used for research are listed below.

- Jan Evangelista Purkyně University
- Masaryk University
- Palacký University in Olomouc
- South Bohemian University
- Tomas Bata University in Zlín
- University of Hradec Králové
- University of Ostrava
- University of West Bohemia in Pilsen

The research used quantitative content analysis. According to Linderová et al. (2016), this type of analysis is characterised by the fact that it monitors the content of the document itself, which can be processed using statistical methods. According to Gavora (2015), the qualitative side of a text, such as words, sentences or topics, is quantified, thus expressing their frequency, order, or degree. The analysis of syllabi led to the creation of specified analytical categories, which were related to the subjects devoted to teaching English to preschool children, the frequency of objectives of these subjects, the requirements for the students and teaching and evaluation methods of the subjects. Subsequently, the analytical categories were quantified, the frequency was determined, and the frequencies were graphically displayed for better clarity. Between the categories, relationships were found, which were interpreted and supplemented by statements from interviews with English teachers of preschool children in kindergartens.

Results

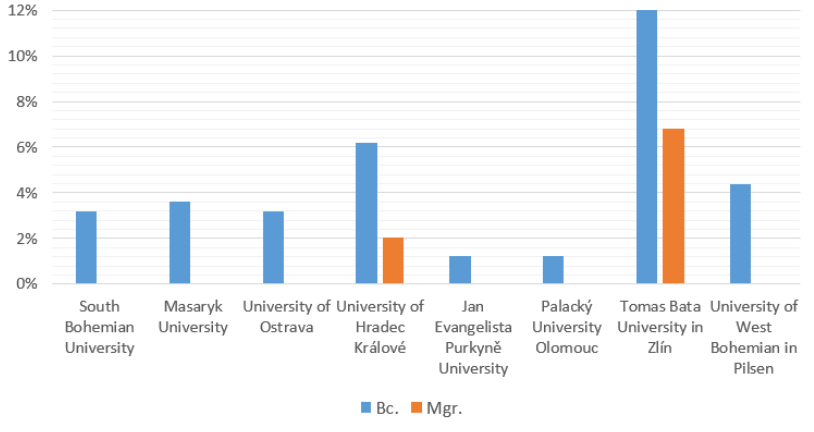
A quantitative content analysis revealed that subjects of preparation for teaching English in kindergarten are not implemented at every university in the Czech Republic that offers courses in preschool education. Of the eight analysed universities, only six were profiled for teaching English in kindergarten. These courses were in different amounts (number of courses) and, in some cases, in a different focus (different content of courses).

Each of the studied universities places a different emphasis on foreign language education, both in terms of acquiring knowledge and skills at the general level of language and in the context of preschool education as a preparation for foreign language activities in kindergarten.

Figure 1 shows the percentage of these subjects in the curriculum of individual universities for bachelor and master courses in the Czech Republic. As can be seen, the largest proportion of English subjects was found at Tomas Bata University in Zlín, accounting for almost 12% of the total number of subjects in the bachelor's degree programme. The lowest values, in contrast, were found at the Jan Evangelista Purkyně University in Ústí nad Labem and Palacký University Olomouc. The analysis of the master's programs has shown that only two universities teach English in follow-up studies. Again, the university offering the most English subjects is Tomas Bata University in Zlín (over 6.5%) and the University of Hradec Králové (over 2%) of the total number of master's courses.

Figure 1

Representation of English subjects at individual universities and degrees

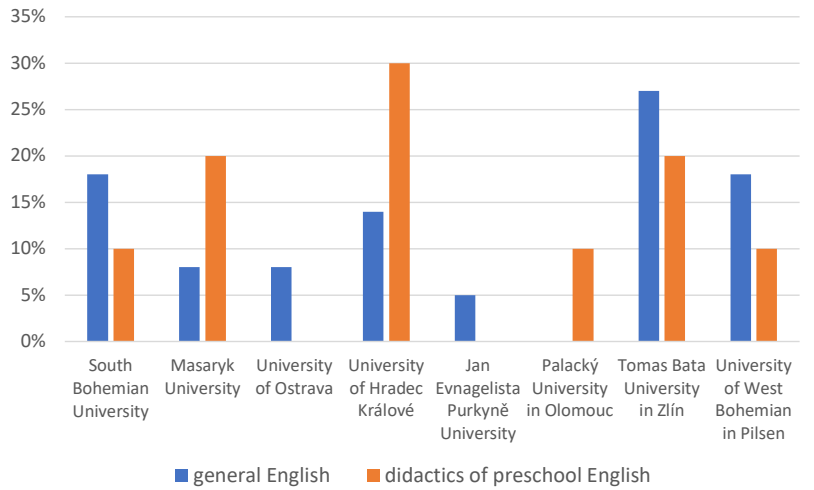


As mentioned above, universities offer students two types of English language courses in preschool education. The first type is general English, which aims to increase the language level of students; the second is the subject primarily aimed at didactics of introducing children to English.

The percentage of didactic subjects for bachelor and master courses at individual universities is presented in Figure 2. As can be seen, most of the subjects focused on preparing future teachers for implementing English in kindergarten were found at the University of Hradec Králové: a total of 30%. The South Bohemian University, Palacký University in Olomouc, and the University of West Bohemia in Pilsen had only one subject. The University of Hradec Králové supported the preparation by another aspect, which was also monitored by content analysis, namely the status of the obligation to complete these subjects.

Figure 2

Representation of subjects focused on teaching English in kindergarten (bachelor and master programmes combined)

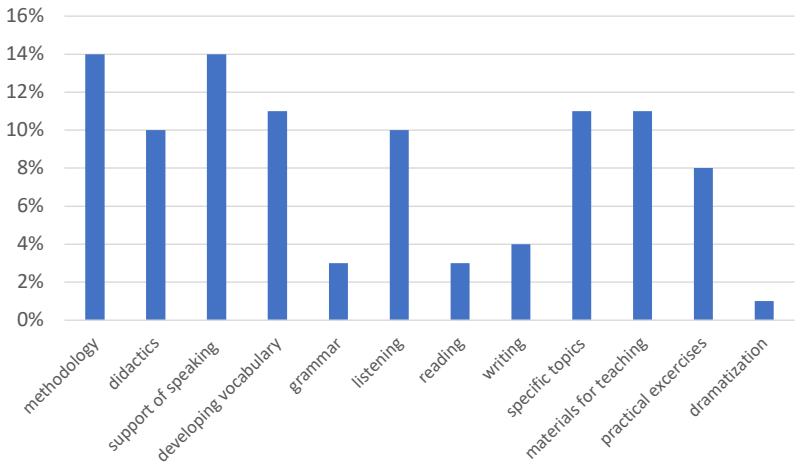


English subjects that focus on didactics of teaching in kindergarten set various goals that students should achieve in completing the course. Most of the subjects were focused on the methodology and didactics of teaching, support of language skills, problems of specific topics, provision of material for teaching English in kindergarten, as well as practical exercises or dramatisation as a means of teaching.

The areas of the most common objectives focusing on acquainting children with English in all universities offering these subjects are presented in Figure 3. Among the most frequent objectives are the support of speaking and acquainting students with various methods of teaching English. Speaking also includes the practice of correct pronunciation and demonstration of its modelling for preschool children. Introduction to the methodology of teaching English, which is the second most frequent objective, most often includes methods such as TPR (Total Physical Response), CLIL (Content and Language Integrated Learning) and picture dictation. Dramatic techniques of teaching English, practising grammar, and practising and promoting partial language skills (reading, writing) were the least represented.

Figure 3

Frequency of objectives of all subjects focused on teaching English in kindergarten at all universities

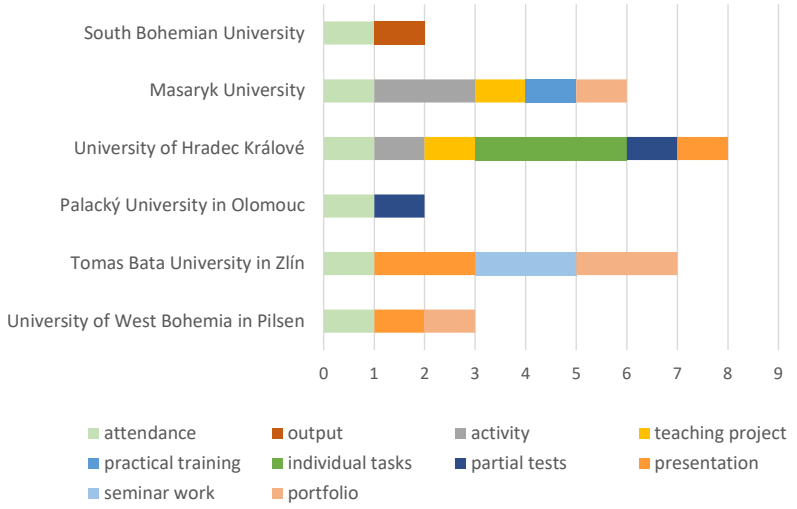


Successful completion of the course requirements was mandatory. These requirements included, in addition to attendance, fulfilling individual tasks, passing partial tests, giving presentations, writing seminar papers, creating a portfolio, and practically demonstrating gaming activities. Figure 4 shows the individual requirements for specific universities. As can be seen, the University of Hradec Králové and Tomas Bata University in Zlín have the most requirements for successful completion of the course. The common requirements across all universities were portfolio and presentation delivery, accounting for approximately 18% of the total requirements. Another frequently encountered

requirement was fulfilling individual tasks and demonstrating gaming activities with students. In contrast, the least frequent requirement was practical training realised in kindergarten. This requirement occurred only occasionally, with a minimum percentage (approximately 5%). As the interview with teachers (graduates of Tomas Bata University from Zlín) showed, it is a most demanding practice from the students' point ,of view. 'I would definitely like practical training on this subject. For students who enrol for this subject and are really interested in it, it was simply not enough.' Another teacher also agrees with this statement: 'If someone says that college is about theory and not about practice, what do students who have not attended secondary pedagogy school have to do? Practice is non-negotiable.'

Figure 4

Requirements at individual universities



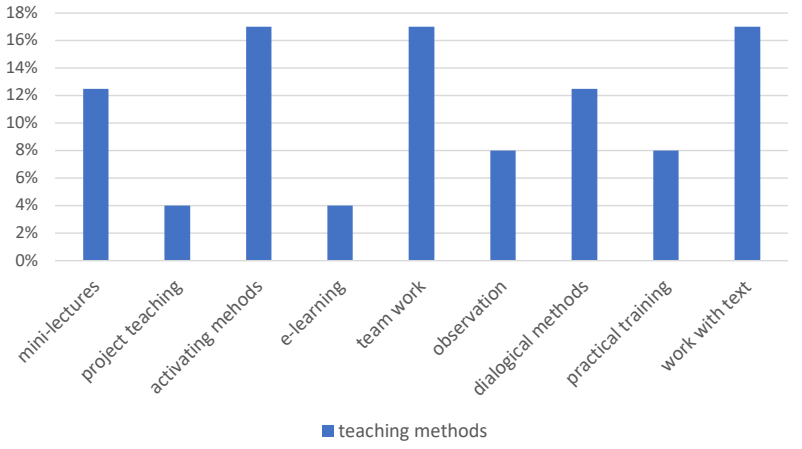
Together with the content, the selected teaching method is the backbone of the whole subject. The methods used by the university teachers according to the syllabi, included working with texts, practical exercises, mini-lectures, observation, teamwork, dialogical methods, activating methods, project teaching and e-learning.

The frequency of teaching methods at all universities is shown in Figure 5. The most represented were methods of working with text (book or textbook), activating methods (simulation, games, dramatisation) and teamwork. All

these methods represented the same percentage: 17% of the total number. The second most frequently used were dialogical methods (discussion, interview, brainstorming) and mini-lectures, both represented at 13%. The least used were e-learning and project teaching (only 4%).

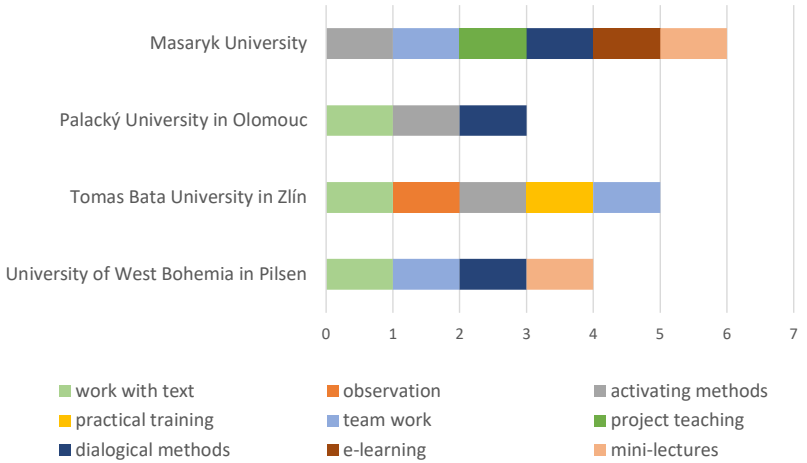
Figure 5

Frequency of teaching methods in subjects at all universities



The greatest varieties of teaching methods were used at Masaryk University and Tomas Bata University in Zlín, while the lowest number was recorded at Palacký University in Olomouc. Tomas Bata University in Zlín is the only one among the analysed universities to use the methods of practical training, which students evaluate as very beneficial, and which contribute to the overall quality of teaching. 'I was very satisfied with the preparation; during the seminar, we were supposed to prepare activities that we realised with other students in the role of children', stated one student. The absence of the University of South Bohemia and the University of Hradec Králové is due to the fact that in their syllabi, they did not mention the teaching methods used in the subject.

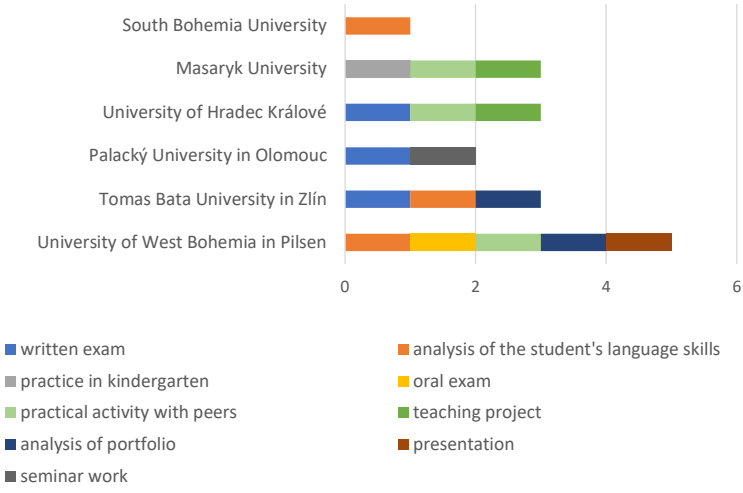
Figure 6
Teaching methods of subjects at individual universities



Requirements for completing the course are also related to the requirements for students to complete the course successfully. At the studied universities, they were written exams, analysis of the student's language skills, practical training in kindergarten, oral exams, practical activities with peers, elaboration of the project for teaching English, analysis of student's portfolio, individual presentation, and seminar work.

Figure 7 presents an overview of the most frequent evaluation methods. As can be seen, most of the methods were included at the University of West Bohemia in Pilsen, which required most assessment methods among all universities. Other universities that set more requirements for completion of the course were Masaryk University, the University of Hradec Králové, and Tomas Bata University in Zlín. Masaryk University was the only one that required practical training in kindergarten. Except for the practice in kindergarten, the University of Hradec Králové set similar requirements. The practice in kindergarten was replaced by a theoretical verification of the acquired knowledge by a written test. Tomas Bata University in Zlín and the University of West Bohemia in Pilsen have established, among other assessment methods, an analysis of the student's portfolio to complete the course. The portfolio was also mentioned in the statements of kindergarten teachers, for example, '*As part of the course, I created my portfolio, which includes activities with children and some recordings. I got great feedback and lots of inspiration.*'

Figure 7
Assessment methods in English subjects at individual universities



The chosen methods and their diversity are directly reflected in the efficiency of the acquisition of knowledge of the subject. According to statements of the kindergarten teachers (former students of Tomas Bata University in Zlín) obtained from the interview, the level of teaching methods in the course has improved (comparison from 2012 and 2019). The teaching methods in 2012 were only lectures and presentations. Another improvement occurred primarily in the content of the subject when former students from 2012 stated that 'I took a subject called "English for Preschool Children", but the subject was not devoted to it at all, the subject was also attended by students from the Social Pedagogy study programme, and so topics such as pensioners, etc. were discussed. Although the subject was called that, its content was far from being only about English in kindergarten.'

Another undisputed improvement compared to 2012 was the requirements for completing the subject. For 2012, a former student testified, 'We were tasked with choosing from about twenty topics and creating a presentation on it, so we practised our English, but the topics were not just related to kindergarten at all. There were topics such as abortion, pensioners, education in Africa, women's circumcision etc.'

As can be seen from another statement by a former student, what is now a clear goal of English-oriented subjects in kindergarten was not a matter of

course in 2012. 'They didn't introduce us to, for example, the materials that would be suitable for the teaching... or the methodology, the didactics... nothing like that. The subject didn't even give me any experience; in practice, I had to come up with everything myself. Here in the kindergarten, where I now teach, I received the materials, but I had to figure out the teaching system and other things related to it myself; it takes years of practice. These courses could save me a few years if these things were discussed there.' It is clear from students' statements from 2012 and 2019 that the subject is now dedicated to the issue of teaching English in kindergarten in a more comprehensive and in-depth manner. Thus, students have a better chance to acquire knowledge and master the skills for successful English teaching in kindergarten.

Discussion

In this article, we have focused on the preparation of future teachers in the vision to determine how the preparation of students (future teachers) for English tuition in kindergarten at individual universities in the Czech Republic is ensured.

Regarding the first research objective (To determine the level of preparation of future teachers for acquainting children with English at individual universities in the Czech Republic), the presented study demonstrates that the surveyed universities focus on English mainly in bachelor's programmes than in master's programmes. The subjects of these programs focused on methodology, supporting speaking, developing vocabulary, specific topics, and providing or creating materials for teaching English to preschool children. However, the practical preparation for teaching English in kindergarten was less represented. The objectives of the subjects were followed by requirements for students. The most frequented requirements were the elaboration of presentations, portfolios, and work on individual tasks. Practical output in kindergarten appeared the least. In the case of teaching methods, the most used were activating methods, teamwork, and work with text. Project teaching, e-learning, observations, and practical training were the least represented.

In general, it can be stated that the level of preparation of future teachers for acquainting children with English at universities in the Czech Republic focuses on the theoretical level of preparation rather than the practical one. This means that there is a lack of entrances to kindergarten where students would try out the acquired theoretical knowledge.

The emphasis on mastering the methodology is in line with the recommendations of Kelly et al. (2004), Widlok et al. (2010), or Vos (2008), who

identify knowledge of methodology as a necessary basis for teaching English in kindergarten. The same opinion is obtained from students who identify methodology as the most important attribute of preparation for teaching English (Dagarin Fojkar & Skubic, 2017). Good knowledge of the methodology enables teachers to create learning opportunities appropriate to the age of the children and also to choose appropriate pedagogical strategies to achieve the set learning objectives. Therefore, it is good news that these recommendations and findings are reflected in university practice. However, according to our research, the knowledge gained in this manner was not sufficiently verified in preschool practice. According to Widlok et al. (2010), practice should be ideally implemented abroad. The benefits of a stay abroad were confirmed by Tanaka and Ellis (2003), who revealed that students completing a stay abroad have significantly increased expertise and also have greater self-efficacy and self-confidence. Natural language exposure also contributes to fluency and vocabulary growth (Coleman, 1997; Freed, 1998), which brings the language of a non-native English teacher closer to the native. In the case of the Czech Republic, where the level of English among preschool teachers ranges from A1 to B2 (Černá, 2015), the possibility of staying abroad resonates even more.

With reference to the second research objective (to compare the future teachers' preparation for acquainting children with English in kindergarten), the following was found.

The most subjects focusing on the preparation of future teachers for English tuition in kindergarten were at the University of Hradec Králové, numbering three. The least was at the University of South Bohemia in České Budějovice, Palacký University in Olomouc and the University of West Bohemia in Pilsen, where there was only one such subject. Masaryk University, together with Tomas Bata University in Zlín realised its preparation in two subjects. The University of Hradec Králové supported its preparation with another aspect, specifically the status of the obligation to complete these subjects. This preparation was most often in the second year of study across all the analysed universities.

On average, most requirements for a student within the course were required by the University of Hradec Králové and Tomas Bata University in Zlín. The most frequent requirements included the elaboration of a portfolio, presentations, and fulfilment of assigned individual tasks. Practical training was the least represented, which, as the interview with former students later showed, was the most frequently mentioned conceptual shortcoming. In addition to the set content of the course, the nature of teaching was also indicated by the chosen teaching methods, which most often included activating methods, methods

of working with text, and teamwork. Former students especially appreciated these methods thanks to the opportunity to try out the activities together and obtain feedback not only from the teacher but also from other students or, in the case of practical teaching, from kindergarten class teachers. The evaluation of the semester work was through various assessment methods. Most assessment methods were used by the University of West Bohemia in Pilsen, which verifies the competence of students with up to five assessment methods: an oral exam and analysis of speaking, implementation of practical activities with students, analysis of the student's portfolio and his/her individual presentation. In contrast, the fewest evaluation methods were chosen by the University of South Bohemia in České Budějovice, which used only one method for evaluation, namely speech analysis.

Overall, the occurrence of spoken language and speech analysis is less common. Emphasis is placed on skills and activities aimed at practice in kindergarten. However, just like these activities, it is important to focus on improving the language itself. The emphasis on spoken language is mentioned, for example, by Goh (2019): kindergarten teachers described the spoken domain as the most important qualification for teaching English. Little experience and an insufficient level of the spoken language on the part of the teacher lead to insufficient self-confidence and fear of using the language (Bell & Bogan, 2013). As Erarslan's (2018) findings show, insufficient assessment of spoken skills and the predominance of written examinations may be one of the reasons for the low level of spoken language among students/future teachers. However, this problem has even wider implications. A direct relationship between teachers' and children's verbal skills has been reported (Asiah, 2013; Cirino et al., 2007). Only a teacher who has a certain level of language skills can set a good role model for children. From a psycholinguistic point of view, the importance of the teacher as a language model increases with the younger age of the children. Therefore, the university training of future kindergarten teachers should pay more attention to the productive use of the language.

Conclusion

Early teaching of English cannot automatically guarantee positive results. The quality of the achieved results depends more on the quality of teachers, teaching materials, and methods (Fenclová, 2004). A trained teacher is thus one of the conditions for successful early foreign language teaching (Commission of the European Communities, 2003). Nikolov and Mihaljević Djigunović (2011) specified the needs of young learners' teachers, one of which is that the

teacher must be qualified and specifically trained in language teaching. Nevertheless, our research findings suggest that university training in the Czech Republic does not always provide the conditions for obtaining an adequate qualification. At universities where students can acquire a qualification, students have asked for more methodology for early foreign language teaching. Greater emphasis should be placed on teaching methodology in university courses, also because the professional community (Hyes, 2014; Kelly et al., 2004; Nikolov & Mihaljević Djigunović, 2011) agrees that knowledge of foreign language teaching methodology is important for creating a supportive learning environment and choosing effective methods of foreign language teaching. Costa and Pladevall-Ballester (2020) share the view that teacher education and the use of teaching strategies should be tackled both in research and in pedagogical practices. Literature, research, and policies already deal with the relevant qualification of the teacher, but according to the research, practice lags. Students have a clear vision of consolidating theoretical knowledge about teaching strategies of early foreign language teaching – it is the inclusion of practical training in the university course.

Research in the field of foreign language education among kindergarten teachers is insufficient and non-complex (Zein & Garton, 2017). Therefore, further research is needed to help look into reality and identify the difficulties that teachers face in practice. Based on the findings of this research, recommendations for universities should subsequently be formulated; doing so would contribute to solutions to the shortage of qualified teachers of early foreign language teaching.

The limit of our research, which concerns the research sample, is the insufficient elaboration of the syllabi of some universities; therefore, it was not possible to make a comparison of some aspects of teaching the course. These inconsistent or insufficient (in some cases completely missing) syllabi can also be confusing for students who want to become acquainted with the course content before enrolling.

One idea for further research is to obtain an interview with students from other analysed universities (not only Tomas Bata University in Zlín) who have completed courses for English tuition in kindergarten. Their statements could provide a practical view of the findings from the contents analysis of syllabi and simultaneously contribute to the comparison of preparations realised at individual universities.

Inspired by foreign university education systems for English tuition, another idea for further research emerges: the comparison of university training in those countries where English teaching is compulsory at preschool age, such

as Poland, Cyprus, and Malta. The result would be not only a comparison of preparation and discovering their approaches to i but also the inspiration for formulating a model of preparation for English tuition to preschool children in the Czech Republic.

At this point, based on research findings, recommendations are formulated not only for kindergartens but also for universities. A surprising finding, from which a subsequent recommendation will be formulated, was the existence of universities that do not provide courses for English tuition in kindergarten. These universities do not even give students the opportunity to prepare for what they may encounter in practice. This can create a feeling of insecurity and demotivation for students, even the rejection of teaching English. The view of the education of future kindergarten teachers should not be one-way and rigid (i.e., from theory to practice= but also reflect the current needs of practice (the ever-increasing trend of foreign language early teaching), which should permeate back to theoretical training.

These universities could be also inspired by the requirements of the students, by elaborating a portfolio that former students find beneficial. Appropriate teaching methods for this subject could contribute to the effectiveness of content mediation, such as activating methods and practical training. Practical training would be implemented not only in the course with other students but especially with children in kindergarten. In the case of kindergarten, it would certainly be beneficial to provide a model worth following: a properly methodically modelled output. This output should represent a variety of activities that should be effective for the set educational aim and thus clearly represent the need for training in this area, which can be usable in practice. Related to this is a greater appeal for acquaintance with the methodology of English, which, according to the syllabi, is implemented at universities, but in practice, its level varies. The acquired theoretical knowledge would thus influence practice and vice versa. This could be ensured by subsequent reflection from kindergarten teachers as well as university teachers. The quality of English tuition in kindergarten would be influenced by the interaction of knowledge, skills, practical experience, and self-study of the student.

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The Saga of Academic Autonomy in Slovenia (1919–1999)

Pavel Zgaga[1]

This article examines the concept of academic autonomy within the 'Yugoslav model' of higher education as a peripheral system characterised by an eclectic mix of elements from different systems, resulting in mutations with unique features during its development. The hitherto underresearched history of this higher education model has by no means been uniform or linear; because of this complexity, the focus here is limited to the case of Slovenia but considers the broader context. The focus is on the understanding, legislation, and (non-)implementation of academic autonomy as articulated between 1945 and 1991. The concept was inherited: it was never used in the legislation of federal socialist Yugoslavia yet was used in political and public debates. Our analysis relates these debates to the rapidly changing legislation and the broader socio-political context. Although the 'Yugoslav model' has vanished, its traces and ashes, including old contradictions and dilemmas, remain partly present in the higher education systems of independent states that emerged on the territory of the former federation. The principle that knowledge of the past is the key to understanding the present and approaching the future is confirmed in this case as well.

Keywords: academic autonomy, higher education reforms, history, Slovenia, the 'Yugoslav model' of higher education, university

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Saga o akademski avtonomiji v Sloveniji (1919–1999)

Pavel Zgaga

Ta članek preučuje koncept akademske avtonomije znotraj 'jugoslovanskega modela' visokega šolstva kot perifernega sistema, za katerega je značilna eklektična mešanica elementov iz različnih sistemov, kar je med njegovim razvojem povzročalo mutacije z edinstvenimi značilnostmi. Do zdaj premalo raziskana zgodovina tega modela visokega šolstva nikakor ni bila enotna ali linearna; zaradi njene kompleksnosti je poudarek tukaj omejen na primer Slovenije, kljub temu pa upošteva širši kontekst. Poudarek je na razumevanju, zakonodajnem urejanju in na (ne)uresničevanju akademske avtonomije, kot je bila artikulirana med letoma 1945 in 1991. Koncept je podedovan iz preteklosti, nikoli ni bil uporabljen v zakonodaji federativne socialistične Jugoslavije, je pa bil uporabljen v političnih in javnih razpravah. Naša analiza povezuje te razprave s hitro spreminjajočo se visokošolsko-zakonodajo in širšim družbenopolitičnim kontekstom. Čeprav je 'jugoslovanski model' izginuli model visokega šolstva, so njegovi sledovi in pepel, vključno s starimi protislovji in z dilemami, deloma še vedno prisotni v visokošolskih sistemih samostojnih držav, nastalih na ozemlju nekdanje federacije. Načelo, da je poznavanje preteklosti ključ do razumevanja sedanjosti in približevanja prihodnosti, se potrjuje tudi v tem primeru.

Ključne besede: akademska avtonomija, 'jugoslovanski model' visokega šolstva, reforme visokega šolstva, Slovenija, univerza, zgodovina

Introduction

Case studies of higher education (HE) models are generally based on typologies and norms derived from dominant, *central* models. Such an approach ignores the peculiarities of *peripheral* systems, which are often characterised by eclecticism. However, an eclectic mixture of elements from different systems leads, in their evolution, to mutations with unique features. Many HE models belong to this category, including the Yugoslavian (YU model; 1945–1991). Despite its historical disappearance, its elements are preserved as mutations in the new national systems of the ex-YU region. This may not be apparent at first glance unless one knows their genealogy. This article focuses on just one aspect of the YU model: the understanding, legislating, and (non)implementation of the principle of academic autonomy as articulated in the second half of the 20th century. The history of HE within this very complex state formation was by no means uniform (Šoljan, 1991); due to this complexity, we limit ourselves here to the case of Slovenia but take the YU context into account.

The history of Yugoslav HE has already been somewhat reviewed (e.g., Bjeliš, 2022; Gabrič, 1994, 1998, 2006; Šoljan, 1991; Zgaga, 2021) but remains under-researched. Most of the material consists of reflective, memorial, or occasional records without research rigour. Extensive archives are still waiting for systematic processing. We have used various categories of this material,[2] not only with historiographical interest but in the perspective of studying the *genealogy of the idea of academic autonomy*. In the discursive traditions of this region, the distinction between academic freedom and institutional autonomy was not domesticated: the term 'autonomy' was often used as an indistinguishable amalgam of both dimensions – at first glance similar but, in fact, quite different from the Anglo-Saxon context (Henkel, 2007).

The understandings and legislating of autonomy went through extremely distinct phases (Table 1). The results of historiographical research thus far are helpful, but we set our task differently: to rethink conceptualisations of autonomy from the perspective of the *history of HE policy ideas*. HE studies offer good opportunities for a history of ideas or intellectual history. If *historiography* focuses on actions performed within a particular time and space, the *history of ideas* is different, since many 'old' ideas live on in changed contexts; some disappear but may reappear later in reinterpreted form, and similar. We argue that many dilemmas of a contemporary HE in the region cannot be understood without knowing its history.

2 Normal "quotation marks" are used to indicate a quotation, while typical discursive terms are marked with a single 'quotation mark'.

Academic autonomy is understood here as the result of the regulation of the relationship (negotiated or dictated) between the government and the academic community in a historical context. When a political authority regulates the organisation of a higher education institution (HEI) through a legal act, the norm set affirmatively or negatively also reflects earlier and contemporary conceptualisations of autonomy. But *norming* does not prevent controversies and public debates about the *legitimacy*, not just the legality, of the norm. This, in short, is the perspective in which we approach the task at hand.

Table 1

Slovenian Higher Education in Political Transitions 1919–1999

Republic of Slovenia	Independence; new political system. 'On the road to Europe'. Renewal of (higher) education system; internationalisation & Europeanisation.	1999 Joining Erasmus & the Bologna Process
		1998 Judgment of the Constitutional Court on HE
		1994 Statutes of Universities
		1993 HE Act
		1990 Constitution RS
SFR of Yugoslavia (SR of Slovenia)	The mid-1960s: the period of 'liberalism'; relative strengthening of autonomy in HE. (Student) movements of 1968–1972; then sharp political reaction. Attempt at a new federal equilibrium resulted in the gradual disintegration of the SFRY. Crisis of the ('career-oriented') education system.	1989 Constitutional amendments SRS
		1989 Career-Oriented Ed. Act amended (SLO)
		1980 Career-Oriented Education Act (SLO)
		1975 HE Act (SLO)
		1974 Constitution (4) SFRY
		1969 HE Act (SLO)
		1965 HE Act (SLO)
		1963 Constitution (3) SFRY
		1961 Non-aligned movement
FPR of Yugoslavia (PR of Slovenia)	The 'New Yugoslavia' built on the USSR model, but then sharp conflict with the USSR (1948). 1953: socialist self-management. 1954ff: the 'social leadership' in HE; restriction of academic autonomy. HE reform; the establishment of the 'YU-model'.	1960 General Univ. Law (federal) 1960 HE Act (SLO)
		1957 University of Ljubljana Act (SLO)
		1954 General Univ. Law (federal)
		1953 Constitution (2) PFRY
		1949 Act on the Regulation of HE (SLO)
		1946 –1948 new HEIs and institutes
		1946 Constitution (1) FPRY
WW 2	Slovenia occupied	UL operates to a minimum and above the political fray
Kingdom of Yugoslavia	The principle of autonomy in the 'ivory tower'. UL's existence threatened (financially, politically). Student activism.	1940-41: 2474 students, 90 professors
		1931 General regulations on universities
		1930 Law on Universities
		1919-20: 900 students, 18 professors
		1919 University of Ljubljana (UL) established
Late 19th century: Efforts to establish a university (Habsburg Monarchy period)		

The Slovenian university and the concept of academic autonomy before 1945

The first Slovenian university was founded in 1919. Decades of efforts within the Habsburg Monarchy could only be realised with the birth of the Kingdom of Yugoslavia (1918). The first professors at the *University of Ljubljana* (UL) came mostly from the central European universities and brought with them the academic culture typical of this region. Among its elements was the principle of academic autonomy, including the extraterritoriality of the university. In relation to the political authorities, the UL often faced threats to its existence during its first 25 years but survived both the Kingdom period and the occupation during WWII without significant interruptions.

The UL Act of 1919 stipulated that until special legislation was enacted, the university should be run according to the Law and Regulations of the University of Belgrade of 1905. New legislation was passed only in 1930–1931, but the position of the UL did not change significantly. Universities were defined as autonomous institutions, exercising their functions within the limits of the law through their governing bodies and under the supervision of the Minister of Education. Staff was civil servants, the professors were appointed by royal decree, and the rector was elected by the University Council, which consisted of the full professors. "University teaching is free, and no one can be held accountable for academic statements. [...] A special sign of university autonomy is usually the right of the university authorities to have the Rector himself keeping order on the university campus" (Strobl, 1957, pp. 360–361).

Archival documents provide insights into the understanding of academic autonomy between WWI and WWII. Kremenšek (1972, p. 193) reports that in a student incident (1935) the police initiated an investigation at UL, but the Senate unanimously resisted and "decided to instruct the police administration that only the university authorities are responsible for judging student disciplinary offences on university grounds". Unlike the otherwise politically neutral professors, the students were organised into various ideological groups, but also advocated respect for autonomy, not only vis-à-vis "non-university factors" but also within the university, as the 1940 pamphlet attests:

> The attainment and safeguarding of personal and intellectual freedom is a prerequisite for successful work in the service of our people. Therefore, our struggle on the university soil is a determined struggle for the *establishment of intact university autonomy and academic freedoms*. The university administration must be completely independent of any

> non-university factors and cooperate with the students. (emphasis in original) (See Kremenšek, 1972, p. 562)

In April 1941, the Kingdom of Yugoslavia was defeated, occupied, and dismembered by the Axis powers. The territory of Slovenia was divided between the Third Reich, Italy, and Hungary. Ljubljana was occupied by Italian troops; the UL was closed but reopened after only three weeks. Gabrič (2001), notes that among the national institutions of the time, the UL's leadership was probably the first to make official contact with the new authorities, asking for "benevolent favour for our university" but "promising nothing but correctness" (p. 215). The authorities immediately attempted to influence the university. Godeša (1994) reports the decision of the occupiers "to abolish the autonomy of the university by establishing the 'Inspectorate for University Studies', where the inspector had the 'de facto' role of the Rector of the university" (p. 15).

In April 1941, a resistance movement (the Liberation Front; OF) was formed in Slovenia, involving various political groups. Godeša (1994) estimates that OF "did not voice a single direct public criticism of the university during the war" (p. 15). The UL did its best to continue teaching and stay above the political fray. However, students and intellectuals became massively involved in OF; in addition to partisan combat units, a strong cultural centre emerged in the mountainous southeast, unique among resistance movements in Europe (Pirjevec & Repe, 2008, pp. 44, 70–84), including hospitals, printing presses, and even a scientific institute.

After Italy's surrender in September 1943, the Nazis and their collaborators intensified the pressure on the UL, which remained in passive resistance. Gabrič (2015) reports a "letter of protest to the head of the provincial administration, Leon Rupnik, which was unanimously signed by all members of the University Senate present" (p. 352). To no effect. The collaborator Rupnik even issued an order suspending lectures. In June 1944, the UL came under the direct supervision of Nazi Commissioner Friedrich Reiner. On 9th May 1945, Ljubljana was liberated; from the balcony of the university building, the Partisans saluted the city.

This context is necessary to follow the post-war development in HE. The period was not monolithic; the idea that the 'new' Yugoslavia was merely a peripheral reflection of the Soviet political (as well as HE) system is highly problematic. Gabrič (2013, p. 44) argues that Slovenia is one of those parts of Europe that encountered all three European totalitarianisms of the 20th century, but after a conflict between Yugoslavia and the USSR (1948), development led in an independent direction. This should be considered in general history as well as in HE studies.

'Academic autonomy' was never used as a term in the legislation of the entire period of the FPRY/SFRY,[3] although it was used in debates. Nevertheless, we will start the analysis with the legislative documents and then connect them with the context. Between 1945 and 1991, many changes took place in the political system, which are reflected in HE. The analysis will be guided by the periods delimited by the frequent constitutional amendments and, consequently, by the corresponding legislation. More important than the constitutional definitions of rights and freedoms themselves are some other provisions that influenced the organisation of the HE system.

Post-war period

The *Constitution of the FPRY* was adopted in January 1946 (Official Gazette FPRY, 1946) and modelled on the USSR Constitution of 1936. The FPRY is defined as "a federal people's state of republican form, an association of equal nations which have expressed their will to live together in a federal state on the basis of the right to self-determination, including the right to secession"[4] (Art. 1). The principle of academic autonomy is not mentioned, but "freedom of scientific and artistic work is guaranteed. The State shall promote science and art for the development of culture and the welfare of the people" (Art. 37). The right of refuge for foreign citizens whose "freedom of scientific and cultural work" has been violated is guaranteed (Art. 32). In the field of education, the federation regulates the "general principles governing the legislation and conduct of the Republics" (Art. 44); otherwise, the six Republics (which form the Federation) are quite independent in this respect. Their constitutions are parallel to the federal one.

The post-WWII situation prioritised the regulation of political and economic issues. The regulation of education took place on an ad hoc basis. Between 1946 and 1949, various decrees on teaching in universities were passed, technical faculties were spun off from universities, new colleges, i.e., *high* (*visoke šole*; a 4-year programme) and *higher schools* (*višje šole*; a 2-year programme), and research institutes were established. There seems to have been no coherent HE policy in the drafting of these documents.

With the decree of the Minister of Education, the UL "began its work

3 FPRY (FNRJ in Croat/Serbian, FLRJ in Slovene), Federal People's Republic of Yugoslavia, 1945–1963; SFRY (SFRJ in all three languages), Socialist Federal Republic of Yugoslavia, 1963–1991.

4 The last part of the sentence was crucial in the decision to make Slovenia an independent state (1990-1991).

in full" on 23rd May 1945 (Official Gazette SNOS,[5] 1946). Later, the Slovenian government issued a „provisional decree on university authorities and teaching staff" (Official Gazette SNOS, 15/09/1945), which remained in force until 1949. Thus, the "overall supervision of the activities of the university authorities" was taken over by the minister, while the traditional university bodies (University Council and Senate) remained unchanged. In this respect, things were more restrictive for the academic sphere in Serbia (cf. Grbić, 1998, pp. 118–119).

In Slovenia, some new HEIs were established, such as the Faculty of Economics (1946), the Faculty of Agriculture, the Pedagogical Higher School (1947), and institutes, such as the Institute of Physics (1946), Chemistry (1947) and Ethnic Studies (1948). There was a division of the academic space into 'pedagogical' and 'scientific' entities, which was atypical for the pre-WWII period. The transfer of the Soviet cultural model was more noticeable in the organisation of scientific work: research institutes, which were traditionally university units, were established at the Academy of Sciences and Arts (Gabrič, 1998, p. 140). With subsequent political changes, this practice was abandoned; the institutes became independent from the academies but did not join the universities.

In the absence of federal legislation, Slovenia adopted the Act on the Regulation of HE (Official Gazette PRS, 1949a; hereafter ZVIS-49). The structure of the UL narrowed: the Faculties of Medicine and Technology became self-standing 'high schools' (*visoke šole*), and the Faculty of Theology became an 'independent faculty'. Academic autonomy did not occur in the text; apparently, in the new, 'truly free social order', this had become a politically incorrect, at least unnecessary, concept. The Government Regulation on the Bodies and Teaching Staff of HEIs (Official Gazette PRS, 1949b) states that the University Assembly consists of *all* staff. It elects the Rector and the Council (formerly the Senate). University bodies remained in the hands of the academic staff. However, the composition of the staff changed somewhat due to emigration at the end of the war and purges for suspicion of "collaboration with the occupiers" or "wrong understanding of Marxism" (Gabrič, 2006, p. 212).

Even in the debates of this period, the concept of academic autonomy appears very rarely. Gabrič (1994) discovered in the archives a significant document of a Communist Party (hereafter Party) commission (22/11/1945):

> Formally, universities should enjoy autonomy, but the Party must gain strong influence over the Rector and the Senate. This can be done in the

5 SNOS, The Slovenian National Liberation Council, the legislative body of Slovene National Liberation Movement from 1944 to 1946. The 1947 Constitution established the name of the People's Republic of Slovenia (LRS). In 1963 it was renamed the Socialist Republic of Slovenia (SRS) and in 1990 the Republic of Slovenia (RS).

> way it was introduced in Serbia, where the Senate cannot do anything definitively without the knowledge and approval of the Minister of Education […]. [T]he Party in Slovenia has not paid enough attention to this problem and there is a shy appearance of the Party in all issues of public life, including school and cultural issues. (p. 106)

Let us supplement this document from 1945 with a record from seven years later. The weekly *Tovariš* (Unsigned, 1952) reported that the Federal Student Congress found

> a petty-bourgeois and anarchic understanding of freedom [...] which allows alien and hostile interpretations both in teaching and in the social and cultural life of the students […] At the university we meet gentlemen who understand the autonomy of the university in a somewhat unusual way; they think that they do not have to give an account of their work to the community. (p. 189)

The sharp conflict between the USSR and Yugoslavia (1948), the need for reconstruction and modernisation of the destroyed country, the low level of education, the lack of human resources, and similar factors were accumulated problems that led to a radical turn of the political system in the early 1950s, promoted as the *socialist self-management* (Pirjevec, 2018). The turn was based on a critique of Stalinism: it is a conceptual shift from a 'state' to a 'society', from 'state socialism' to 'socialism with a human face'. The Party was renamed the League of Communists of Yugoslavia, with its branches in the six Republics. The official criticism of the USSR (even if it was not intended) encouraged new discussions and controversies about social development, including the development of HE.

Self-management and "social leadership" of the university

This led to *Constitutional Law* (Official Gazette FPRY, 1953): *self-management* formed the political basis of the system and *social ownership of the means of production* the material basis. This was another step towards decentralisation and 'power of the working people', while in HE even the hitherto weak elements of academic autonomy disappeared.

The Constitutional Law distinguished self-management of "workers" in the economy and of the "working people and citizens" in the municipality and "in the fields of education, culture, and social services" (Art. 4). In the Slovenian Constitution (Official Gazette PRS, 1953), the provision on self-management

in the field of education, science, and similar was somewhat more detailed: in these areas "representatives of professional and other concerned social organizations" participate (Art. 6). This was called *social leadership*. From this point on, the "fundamental contradiction between the emphasised self-managerial (democratic) form and the government's need to monopolistically control all instances and institutions of governance at the university" (Grbić, 1998, p. 119) cannot be overlooked throughout Yugoslavia.

In June 1954, the General University Law was passed (Official Gazette FPRY, 1954; hereafter SZU-54), valid for the entire federation. The university is defined as an "association of faculties" (Art. 1); both the university and the faculties are "independent institutions based on the principles of social leadership" (Art. 2) and "legal entities" (Art. 18). It is stated that "questions of teaching and scientific work fall within the exclusive competence of the pedagogical-scientific collectives" (Art. 2) and that "the freedom of pedagogical and scientific work in the university is guaranteed" (Art. 4). However, since the "social community provides material resources" (Art. 10), the University Council is composed of representatives of the academic staff *and* the "social community". The provision allows the dominance of the representatives of the "social community" elected at the republican level by the respective assembly (i.e., parliament) (Art. 34). The University Council also decides on the election of academic staff to titles (Art. 35). SZU-54 assigned an administrative role to the rector and dean (Art. 39-40). The possibility for the Academies of Sciences to conduct doctoral studies was abolished (Art. 62): another departure from the Soviet model.

In Slovenia, the implementation of SZU-54 took three years, both because of resistance at the UL (Gabrič, 2006, pp. 229-230) and because of an unfinished political vision. Gabrič (2006) cites a document from the Party's archives (14/05/1957), in which Boris Kraigher, the Slovenian Prime Minister, explains the basic political stance that the educational reform will be

> a political action because we will somehow interfere with the autonomy of the university – and here people are very sensitive. But we must not allow these issues to be solved formally and democratically only at the university, because then we will not achieve the re-election [of staff] nor the reorganisation of faculties, nor the shortening of the period of study. (p. 222)

The act was passed in June 1957 with a shortened title: University of Ljubljana Act (Official Gazette PRS, 1957; hereafter ZUL-57). All the faculties and colleges of the time were reunited in the UL (except theology). The principle

of *social leadership* of HEIs was strengthened (Art. 3). Art. 6, which guarantees the "freedom of teaching and scientific work at the University", at the same time stipulates that "teaching and examinations are public". Management of the university and faculties does not differ from SZU-54, but it is specified that "the collective bodies of the university and faculties shall deliberate and decide as a whole" (Art. 10). Thus, academic staff can no longer decide on a matter independently of the representatives of the 'social community' who have a guaranteed majority on the Council.

In addition, ZUL-57 introduced provisions that intervene in the organisation of teaching and learning to increase their effectiveness. The legislative changes were accompanied by discussions that were exacerbated by data on the situation in HE. For example, for the then (1954) four-year (exceptionally five-year) courses, the statistical data show the average study time from 5.7 years at the Faculty of Philosophy to 9.0 years at the Faculty of Mechanical Engineering (Virant-Zajšek, 1955). It is not difficult to imagine how these figures were commented on by political and business leaders, as well as the public. This was a key point in the *modernisation* push against the *traditionalism* of academics.

These issues were discussed in the media. According to law professor Bavcon (1957):

> […] the problem lies in the [Central European] system of studies, which is based on lectures in which the audience is passive and in which a few individual brilliant [...] authors of thick books prevail. [...] This system corresponded to the so-called academic freedom as an expression of the liberal-individualist spirit of the time. Modern times have arguably stripped away almost all the principles of said system, raising the dilemma: Do we want narrowly specialized routiniers, or independent, thinking intellectuals who see problems and solve them undogmatically? (p. 600)

The "so-called academic freedom" should be read in context: it is about the freedom to choose what to study, including for how long to study. Bajt (1958), a professor of political economy, who was somewhat suspicious to the authorities, addressed this aspect:

> According to some, faculties have no right to put pressure on students to study better and faster. This should be solely a matter of the student and the one who supports him. This is essentially the content of the principle of freedom of university education. (pp. 185–186)

Bajt summarises the critique of the old system in a utilitarian perspective of "general benefit to the whole population":

> Studies must be organized in such a way that they are as successful as possible. Studies will be most successful if the best possible experts (not just knowledgeable people) are produced in the shortest possible time. [...] Freedom of study means the irresponsible waste of resources due to the working people. (pp. 185–186)

Undoubtedly, the inherited HE system was outdated, but there was also no consensus on the direction of renewal. The discussions cannot be viewed only through a political lens. As in the rest of the world, Yugoslavia faced the first *problems of transition from elite to mass HE* (Trow, 1974). The HE massification (Zgaga, 2021, p. 216) required answers from both governments and universities. Without autonomy, the latter could not provide effective answers, but if universities insist on tradition in such challenging situations, conflict with the government's decision to modernise is inevitable. In contrast, if the government ignores the importance of academic autonomy, the success of the HE reform becomes questionable.

The dilemma was mirrored on both sides. There was a very long road leading to a clear idea that the (modern) university is "an autonomous institution at the heart of societies" (Magna Charta, 1988) and that it is necessary not only to recognise in principle but also to mutually redefine academic autonomy in relation to "the heart of societies". With the reform of the late 1950s and in a given political context, the problems of *massification* pushed universities towards becoming pedagogical institutions and moved research to self-standing institutes.

The intellectual-liberal position was a justified resistance to the authoritarian experimentation with HE, but existing academic traditionalism prevented the answer to a key challenge: to ensure wide access to HE, its 'democratisation'. This was not only a question of relations with 'external authorities' but also (as revealed by the 1968 movements) of internal hierarchical academic relations. The reform, completed around 1960, somewhat expanded accessibility, but the democratisation of HE remained a problematic point. The university came "at the heart of society", but not as an "autonomous institution". The reform further strengthened the fundamental contradiction between the democratic, self-managerial form and the actual monopoly of the Party. There were high-profile scandals with a "distinctly intimidating character" (Gabrič, 2006, p. 236): the abolition of the critical journal *Perspektive*, the removal of 'non-Marxist' assistants, forced retirements, and similar.

The legislative changes were not over yet. SZU-54 was amended as General Law on Faculties and Universities (Official Gazette FPRY, 1960); hereafter SZFU-60). The faculties came to the fore as 'self-standing' institutions. The provision on the *social leadership* of HEIs remained in force. The establishment of a new HEI could now be proposed by "districts, municipalities, economic and other organizations" and confirmed by the Republic's Assembly (Art. 8). The university is no longer the only form of "association of faculties"; especially new colleges ('high'/'higher' schools) may also form "communities as independent social bodies" (Art. 12). Studies are divided into three stages: the first lasts two years ('*higher* education'), the second a total of four years, integral or as 2+2 ('*high* education'), the third lasts "at least one year" and leads to a master's or specialist degree (Art. 13–16). Full-time students were required to undertake practical work (Art. 20) and expected to complete their studies faster than the standard period of study. Part-time study with adapted regulations was also encouraged (Art. 26). The provisions on the election of teaching staff to titles include pedagogical, scientific, and professional criteria; their 'socio-political commitment' is not explicit in the text but self-evident.

The transposition of SZFU-60 into the Slovenian Act (Official Gazette PRS, 1960; hereafter ZVIS-60) did not bring anything substantially new. Formally, the principle of 'academic self-management' ("freedom of teaching and scientific work") was retained, but under the premise of the 'social leadership' of HEIs. In organisational terms, however, there was a change in the status of the university. The tendency in this direction was apparent earlier, but now it is given a clearer form (Art. 3):

> The University and other associations of HEIs (hereafter: The Association) shall provide for the cohesion of teaching and scientific work and shall conduct matters of common importance to the HEIs in the Association. The Association shall have only the rights and duties determined by law.

This reform solidified the normative basis for the *fragmentation of the university* that characterised the entire territory and throughout the history of the FPRY/SFRY, in some cases up to the present. ZVIS-60 defines the term HEI as "faculties, high schools, art academies and higher schools" (Article 1); the university is no longer HEI, it is only an *association* of HEIs. With the provision that "individual tasks of HEIs may also be performed by independent scientific institutions", HEIs are assigned primarily a *pedagogical* function.

Thus, after much experimentation, the *YU model* of HE emerged around 1960, but the period of much-needed stability had not yet begun. Frequent corrections to legislation continued, as did the debate over the development of HE. In Slovenia, this also escalated with the political decision on new colleges and the gradual emergence of the second Slovenian university, the University of Maribor (UM) (Gabrič, 2006, pp. 242ff). The 'decentralisation' of HE can be interpreted as an attempt to widen access to study, but also to further limit the autonomy of the (still only one) university (i.e., UL), which was reduced to an *association*. Here arose the archetype of the question of w*ho is autonomous - universities or faculties*, which characterises the whole ex-YU region to some extent until today (Zgaga, 2019).

The period of 'liberalism': reaffirmation of autonomy?

The 1960s brought yet another new constitution (Official Gazette SFRY, 1963). Now, the country was named *Socialist* Federal Republic of Yugoslavia. The constitution focused mainly on regulating the relations of the federation. Another step was taken toward greater powers for the republics, including in education. The Federal Ministry of Education was abolished; the universities became fully accountable to republics. The amendment HE Act "in the SRS" (Official Gazette SRS, 1965; hereafter ZVIS-65) brought only minor changes to ZVIS-60. Besides the UL, the "Association of HEIs in Maribor" (Art. 72) is mentioned for the first time, an embryo of the UM (established 1975).

Soon after, a new amendment (Official Gazette SRS, 1969; hereafter ZVIS-69) defined the UL as a "compulsory association of faculties" (Art. 3), while art academies and colleges "may by law unite to form associations of HEIs" (Art. 4). HEIs were given a new attribute: "an activity of particular social importance" (Art. 8). Surprisingly, the provision on freedom of teaching and scientific work, which had been included in various forms in previous laws, disappeared from ZVIS-69 but appeared in the concurrent Research Activity Act (Official Gazette SRS, 1970). The previous rhetoric was replaced by actual *liberalisation*: ZVIS-69 returned some important decisions to the jurisdiction of academic organs. The Council of a HEI remains tripartite ('social leadership') (Art. 62); a radical change is the introduction of a *Pedagogical-Scientific Council* (*Pedagoško-znanstveni svet*) composed of all teachers and researchers, including student representatives (Art. 65): it decides on curricula, elects staff to titles, and similar. (Art. 68). This was a *legal re-affirmation of academic autonomy* without using the term, which was a side result of the *liberal period* in Slovenian politics of the late 1960s (Repe, 2005, pp. 61–65).

This was also reflected in the new foreign policy, with the FPRY/SFRY taking the lead in *Non-Aligned Movement* (established 1961; Repe, 2005, p. 66). A side effect was the arrival of students from 'Third World' countries. The *YU-model of HE* was also promoted internationally in other ways, for example, through the international conference *University Today* (1956–1991; Bondžić, 2012). All this influenced national debates.

On the 50th anniversary of the UL, an intellectual discussion on "Basic Questions of the Slovenian University" took place (*Anketa*, 1969). In the light of national reform, issues such as the HE massification, the teaching vs scientific mission of the university, interdisciplinarity, and similar were raised. Attention was drawn to the "crisis of the old university" as a "crisis of concept", to the "markedly one-sided" relationship "between society and the university", and similar. The reference to the simultaneous "revolutionary demands of [Rudi] Dutschke, [Daniel Cohn-]Bendit and others for critical, free, etc. universities" in Germany and France was not missing.

The domestic student revolt was not long in coming either. It broke out unexpectedly, in June 1968, first at the University of Belgrade and then in Zagreb and Ljubljana. To summarise a long story into its essentials: the mass revolt attacked a visible gap between 'self-managing socialist ideals' and 'reality', but later split into radical currents and gradually disappeared after 1972 under pressure from the authorities. Besides students, critical professors also played a prominent role (e.g., the journal *Praxis*). The movement was primarily a political protest, and alongside it the ideas of a 'free', 'alternative university' crystallised.

At UL, the movement led to a major organisational surprise: the students left the official Union of Students of Slovenia and founded a new organisation, the Association of Students of Ljubljana HEIs (SŠLVZ). It remained affiliated with the Yugoslav Student Union but was organised on different bases. Its Statute of 1969 (in Zgaga, 1982) emphasised:

> Freedom of diversity as the way to unity is the only democratic way. It affirms the sovereignty of the individual in thought and life. It recognizes personality, it acknowledges the reality of complementarity, competition and opposition. (p. 69)

The movement intensified and reached its peak in 1971, including protests against political repression at the University of Belgrade. When the police arrested a student because of a political leaflet, the movement reacted indignantly "On May 8th [1971], for the first time since the war, the police violated the

extraterritoriality of the University" (p. 156). "We demand the autonomy and inviolability of the university; we demand what has been established in democratic countries since the Middle Ages" (p. 149).

This was followed by a week-long student occupation of the Faculty of Arts, whose *Manifesto* emphasised as follows (Zgaga, 1982) :

> One of our fundamental demands is the extraterritoriality and autonomy of the university, which fundamentally allows for the freedom of scholarship. [...] Our action is also a demand for a greater role for the intelligentsia in the affairs of society and an end to suspicion and distrust of the intelligentsia. [...] Society is only free when it dares to look its truth in the face. (pp. 201–203)

The students were also supported by the staff:

> "The Pedagogical-Scientific Council of the University notes that employees of Public Security Administration [Police] have recently intervened several times on university premises [and] believes that there are no reasons to change the previous practice, according to which such extraordinary interventions are only possible after prior consultation with the Rector. (p. 157)

The end of 'liberalism' and the introduction of 'career-oriented education'

These were the straws that broke the camel's back; political action began with repression and a change of political course. This occurred not without consequences for HE, as we learn from a document from the Central Committee of the Slovenian Party[6] (CK ZKS, 1973):

> Too many decisive tasks have been entrusted to the Pedagogical-Scientific Councils, so that the work of the councils of HEIs has become extinct. Because of all this, it is necessary to prepare as soon as possible a proposal to amend the law to eliminate all these negative consequences. [...] Communists are committed to the freedom of science and to the cultural and responsible discussion of controversial questions. But this does not mean that we should remain indifferent to conservative and reactionary ideas, even if they disguise themselves in scientific form. [...]

6 Slovenian abbreviation: CK ZKS.

> Pedagogical-Scientific Councils should decide on scientific titles [i.e., PhD] and give opinions on the suitability of candidates for teaching staff titles. Decisions on the awarding of titles [...], on recruitment and on the fulfilment of the pedagogical and social criteria of teaching staff should be taken by the Councils of HEIs. (pp. 14–15, 25)

The period of *liberalism* was marked by both economic prosperity and growing social inequalities, as well as political friction between the 'developed North' and the 'undeveloped South'. Frictions in politics, not unknown before, were this time joined by spontaneous civil society movements on the spectrum from (left-wing) student to (right-wing) nationalist groups. The political action was followed by a new constitution (Official Gazette SFRY, 1974), the last before the collapse. The changes were intended to reduce tensions and consolidate the country, but the monopoly of central power had already begun to disintegrate into increasingly distrustful republican strongholds.

The concept of socialist self-management was redefined; among the most important categories was the *free exchange of work* (regulated by the United Work Act; Official Gazette SFRY, 1976), which defined the relationship between the economic and social spheres. "The workers of associated work organizations ['OZD'] engaged in education, science, [etc.] derive their income from the free exchange of their work with the work of the working people whose needs and interests are met in these fields" (Art. 16). Workers in these fields and workers in 'OZD' "shall form self-managerial communities of interest in which they shall exercise the free exchange of work [...] and shall decide equally and jointly on the conduct of these activities in accordance with their common interests" (Art. 52). This reaffirmed the principle of *social leadership*.

The renewed Slovenian HE Act (Official Gazette SRS, 1975; hereafter ZVIS-75) thus defines HE as "part of the united work" (Art.1). The basic organisation form become the "basic organisation of united work in HE" (Art. 5), for example, departments within faculties which "compulsorily merge into universities" (Art. 9). The two "self-managerial interest communities", education and research, ensure the "free exchange of work", "the adoption and coordination of educational and research programmes" and "their implementation and rational division of work" (Art. 28). The university fragmentation escalated.

The relative autonomous power of universities from ZVIS-69 were taken away again by ZVIS-75. HE activity is of "special societal importance": it is "realised through the co-decision of the founders" (Art. 4), meaning the 'united work', political organisations and communities. Decision-making was concentrated in the tripartite Council of HEI ("delegates of workers, students

and users"; Art. 86). Pedagogical-Scientific Councils were preserved as toothless tigers dealing only "with questions in the field of educational and research work and submitting opinions and proposals to the Council" (Art. 95). Now, the Council not only elects the Habilitation Commission (HC; a university committee that gives consents to the election of staff to titles), but its members are nominated by a national political body (SZDL; Art. 30). The traditional criteria for awarding the title (i.e., scientific and pedagogical qualifications) are now supplemented by the so-called 'third basket': "commitment to and social activity for the development of socialist self-management" (Art. 69).

An even more radical change came soon: the special HE Act was abolished and replaced by the *Career-Oriented Education* [COE] *Act* (Official Gazette SRS, 1980; hereafter ZUI-80): COE "is part of a unified educational system in the SRS and includes all education after primary school" (Art. 1).

The reform of COE was being prepared in the mid-1970s, after a showdown with 'liberalism', and determined by the Party's congresses. It aimed to improve the still poor educational structure of the population, but the politically motivated 'preventive measures' against radical students and critical intellectuals cannot be overlooked. In most republics, the reform was rushed through, which was not the case in Slovenia; here, the public criticised its means and goals. In a decentralised federation, where responsibility for education lay with the republics and the 'federal cement' was provided by the Party, the Slovenian law was passed with a noticeable delay, while arousing sharp opposition in civil society (Zgaga, 2021, pp. 217–220).

The provisions governing the organisation of HEIs did not change significantly from ZVIS-75, only the provision on the HC were tightened: half of its members were elected by the University Council from among academic staff and students, and the other half from among "political and public workers". In case of disagreement, the arbitrator was to be the National Assembly (Art. 187).

Criticism of COE and the 'reform of reform'

There were many reasons for criticism of ZUI-80. The basic idea – the 'linkage of school and factory' – together with the argument of 'applicability' and 'efficiency' (socialist utilitarianism was unusually close to contemporary neoliberalism), led to rigid educational 'verticals' and neglected the importance of general education. These were not the only aspects perceived as political coercion. Restrictiveness became an increasingly broad and concrete concept in the 1980s: the economic crisis restricted both the goods of life and the budget for education. There were fewer places for new students, pressure on the limited

places increased due to deteriorating employment opportunities and growing educational ambitions in society, and similar. When the first 'oriented generation' enrolled at HEIs (1985/86) none of the participants were satisfied with the renovated 'oriented' programmes. The reform failed (Zgaga, 2021).

In 1986, there were far-reaching *personnel changes* on the political horizon: in Slovenia, the previous 'hardliners' were replaced by the 'liberal' Milan Kučan (Repe, 2005, p. 65); at the same time, Slobodan Milošević became leader in Serbia. Views on the further political development of the federation diverged completely, and conflicts began to deepen. In Slovenia, the changes were accompanied by the appearance of the so-called 'new social movements'. The criticism of COE gradually created a space for discussion about what kind of educational system Slovenia needed in the future, and under the new wave of 'liberalism', the ministry prepared a "Report on the Transformation of Education" (Reporter, 1986).

Discussions of HE were also intensified by the research project "Long-term development of HE in SRS" (Zgaga, 2021). The culmination of the project was the national conference (DRVŠ, 1988) that addressed, *inter alia,* issues of the reconceptualisation of academic autonomy. Both academic staff and prominent political representatives were present. Boris Frlec, Deputy Prime Minister (and professor at UL), openly criticised the basic concept of ZUI-80, saying that the university "is not a company" (ibid., p. 34). The question of the relationship between the state and the university came to the fore: "The university outside the political relationship is [...] a mere illusion and with it the notion of HE autonomy removed from the social environment" (p. 38). Andrej Marinc (SRS Praesidium) promised to "promote the creative freedom of individuals and groups and thus the responsibility for their own and common development" (pp. 45–46).

Professor Fabinc, former Rector of UL, summarised the results of the conference. The renewal of HE "is taking place in the historical period of transition of our society from extensive to intensive management". What model to choose? "There is no universal model of universities. A true university is the result of a long creative process of its social environment." This raises questions of organisation: "The only possible basis for self-organisation and for regulating the position of the university in society" must not be based on "closure and revival of surviving monopoly tendencies". The path of transition must consider, first, the "strengthening of the faculties' professional responsibility for their integrated educational and research programmes" and, second, the decision-making of "new central university bodies that take over part of the professional responsibilities previously borne by non-university [i.e., political] institutions" (pp. 47–54).

The overall debate on the future of national education led to a radical change in ZUI-80. In an atmosphere in which the disintegration of the federation and the transition to a pluralistic political system were already palpable, many articles were deleted, some were amended, and others were retained until fundamental decisions are made on the new political system. With the amended ZUI-89 (Official Gazette SRS, 1989a), the powers begin to pass back to the universities. The Scientific-Pedagogical Council was rehabilitated as a "professional body" (Art. 79), which also decided with the representatives of the students (but no longer of the 'social community'), for example, on the degree programmes, titles of academic staff, and similar issues. The 'third basket' was deleted and the composition of the HC was left to the university. The university remains an "association" but strengthens its power: its Scientific-Pedagogical Council decides on interdisciplinary programmes, gives a binding opinion on the degree programmes of the faculties, proposes the national HE framework, participates in the planning of the national development (Art. 62), and similar activities.

Such great power had not been concentrated in academic bodies since 1954.

The great changes in HE reflected even greater changes in the political system. Slovenia responded to federal pressures by amending its constitution in an entirely different direction, including the "right to free political association" (Reporter 1989, Am. 9.17). The amendments heralded the end of the socialist self-managerial system, in which the leading role was given to the Party. Education was now no longer "based especially on Marxism as the foundation of scientific socialism" (Constitution, fundamental principles, V.; Official Gazette SFRY, 1974), but "on the achievements of modern science, humanism and patriotism, respect for human rights and freedoms, and equality of nations and nationalities" (Reporter, 1989, Am. 9.19). Mention is also made of the forthcoming "solutions in the new act on the university, which will be considered before the end of the year [1989]", but it was postponed.

Soon constitutional amendments were promulgated (Official Gazette SRS, 1989b), while growing conflicts led to the disintegration of the federation. In December 1990, the republics of Slovenia (RS) and Croatia (RH) each adopted their own *new constitutions* (Official Gazette RS, 1990; Official Gazette RH, 1990) based on the principles of human rights and political pluralism. Both contain almost identical definitions regarding *academic autonomy*: the autonomy of "universities" (Croatia, Art. 67) or "state universities and state high schools [*visoke šole*]" (Slovenia, Art. 58) is guaranteed, and a special law is also provided. Both documents guarantee the "freedom of scientific and artistic

creation" (Croatia, Art. 68, Slovenia, Art. 59). Similar provisions were later adopted by other newly independent states (Bjeliš, 2022).

In June 1991, an armed conflict arose between the Federal Army and the Slovenian Territorial Defence, which ended quickly and somewhat happily. Slovenia became independent, while the other parts of the former SFRY were at war for a decade. In such a situation, the normative regulation of HE certainly could not be the legislative priority; the previous provisions remained mostly in force. In Slovenia, the new legislation was adopted early, in December 1993 (Official Gazette RS, 1993; hereafter ZVIS-93) (Zgaga, 2021). For the first time in history, ZVIS-93 defined in detail the autonomy of HEIs (Art. 6), which ensures, among other things, freedom of research, artistic creation and dissemination of knowledge, independent regulation of internal organisation and operation in accordance with the law, decisions on academic staff titles and selection of staff, preparation and adoption of study and research programmes, etc.

Conclusion: The saga continues

However, this was by no means a happy end to the saga of academic autonomy. ZVIS-93 brought about a fundamental normative shift, but also sparked controversy on several issues, most notably the relationship between the university and its 'members' (faculties). ZVIS-93 introduced the concept of the *integrated university*: "The University is a legal entity" and "members of the University" are established only "within the University" (Art. 10). There is no space for a detailed analysis here (see Zgaga, 2007, pp. 77–81), but it is worth pointing out the dispute that was fought in the Constitutional Court. Put simply, it was about the old dilemma: *who is autonomous – the university or the faculty?* The court ruled that ZVIS-93 "is incompatible with the Constitution because it states that the members of the University are also autonomous" (Official Gazette RS, 1998a) and invalidated part of the UL statute (Official Gazette RS, 1998b) because it gave some 'members' too much power in the Senate. An amended law (Official Gazette RS, 1999; hereafter ZVIS-99) was passed; the university statutes were also amended. The debate about the relationship between the 'university' and its 'members' calmed down, although it still flared up occasionally.

The legal definition of academic autonomy has not changed significantly since then. After twenty-eight years, a new eruption occurred recently: the Constitutional Court ruled that ZVIS-93 and ZVIS-99, Art. 10 are incompatible with the Constitution (Official Gazette RS, 2021). We can expect new sequels to the old saga. Moreover, the knowledge of history will also be important.

This saga has two dimensions: one is the relationship between *academic institutions and political power*, the other is the *relationship within academic institutions*. In the space and time we have been talking about, academic institutions have encountered governments in various (often very unfriendly) ways, but have attempted to negotiate their mutual relationships. The issue is not only the *legality* but also the *legitimacy* of a particular regulation. Regulations are strongly influenced by ideational discussions about academic spaces "at the heart of societies": they lead to prevailing views about what a university is, what its mission should be, and similar. Therefore, a critical reflection on the prevailing academic culture in the general historical context could make an significant contribution to the outcomes of negotiations between the academic and the political worlds.

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Zero Tolerance vs Restorative Justice in the United States

Kimberly Battjes*[1] and Lilly Zane Kaplan[2]

As schools across the United States begin to move away from the harsh Zero Tolerance policies that characterised the better part of the previous three decades, there is an opportunity to change the focus of school discipline. Frequently, school discipline policies are centred on punitive approaches that separate students from their peers. Rather than meeting the needs of these students, schools alienate them from their peers, teachers, and school communities. The goal of the education system is to provide children and adolescents with a quality education that will allow them to grow into productive and participating members of society. Zero Tolerance and school discipline policies were created to protect students, but, in practice, these policies have proven to be harmful and have unintended consequences. Too often, punitive disciplinary action in the school setting puts students on a pathway that leads into the juvenile or criminal justice system. Although the Zero Tolerance policy is a federal initiative, many states are beginning to realise the harmful impacts this policy has on students, especially marginalised students. As a result, states are beginning to pass legislation that veers away from Zero Tolerance, focusing more on alternatives like restorative practices. This article will explore these issues and share information on policies current states are using and the implications of these policies on students, as well as the school-to-prison pipeline.

Keywords: restorative practices, school discipline, zero tolerance policies, school-to-prison pipeline

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Ničelna toleranca proti restorativni pravičnosti v Združenih državah Amerike

Kimberly Battjes in Lilly Zane Kaplan

Ko se šole po Združenih državah Amerike začnejo odmikati od ostre politike ničelne tolerance, ki je bila značilna za večji del prejšnjih treh desetletij, vznika priložnost, da se spremeni gorišča točka šolske discipline. Njene politike so pogosto osredinjene na kaznovalne pristope, ki delujejo ločevalno, s tem ko jih namesto zadovoljevanja potreb teh učencev šole odtujijo od vrstnikov, učiteljev in od šolskih skupnosti. Cilj izobraževalnega sistema je otrokom in mladostnikom zagotoviti kakovostno izobrazbo, ki jim bo omogočila, da odrastejo v produktivne in participativne člane družbe. Politike ničelne tolerance in šolske discipline so bile oblikovane za zaščito učencev, vendar so se v praksi izkazale za škodljive in imajo neželene posledice. Kazenski disciplinski ukrepi v šolskem okolju prepogosto postavijo učence na pot, ki vodi v kazenskopravni sistem za mladoletnike ali kazensko pravosodje. Čeprav je politika ničelne tolerance zvezna pobuda, se številne države začenjajo zavedati škodljivih vplivov, ki jih ima ta politika na učence, zlasti marginalizirane učence. Posledično države začenjajo sprejemati zakonodajo, ki se odmika od ničelne tolerance in se bolj osredinja na alternative, kot so restorativne prakse. Ta članek raziskuje tovrstna vprašanja in predstavi informacije o politikah, ki jih trenutno uporabljajo zvezne države, in posledicah teh politik za učence pa tudi o neposredni poti od šole do zapora.

Ključne besede: restorativne prakse, šolska disciplina, politika ničelne tolerance, pot od šole do zapora

Origin and Evolution of Zero Tolerance

In the early 1990s, when crime rates were at an all-time high, the Congress of the United States adopted a punitive mindset centred around 'tough-on-crime' approaches in educational settings. The criminalisation of juveniles during this time created a school discipline climate characterised by harsh punishment (Kang-Brown et al., 2013). The Gun-Free Schools Act, passed by Congress in 1994, marked the beginning of Zero Tolerance policies throughout the United States. (Gun-Free School Act, 1994) This federal mandate specifically stated that schools are required to expel, for at least one year, any student who brings a firearm to school for the school to qualify for federal funds (Gun-Free Schools Act, 1994). This punitive mandate of the federal government set the stage for states to implement their own Zero Tolerance policies, expanding on the federal requirement.

As school shootings became more frequent and fear was instilled in the minds of Americans across the country, states began to take matters into their own hands. Zero Tolerance policies were expanded to include violent offences beyond the federal firearm requirement. Federal and state funding increased to support security guards, law enforcement and, eventually, metal detectors in schools. These new measures aimed to keep students safe but, in practice, contributed to creating an atmosphere like the criminal justice system (Kang-Brown et al., 2013). Furthermore, creating a self-fulfilling prophecy, the more students are treated like criminals, the more they act like criminals.

Throughout the late 1990s and into the 21st century, schools continued to embrace an exclusionary approach to discipline, bolstering their Zero Tolerance policies to include non-violent behavioural and misconduct offences. The federal government's requirement was intended to keep schools safe. However, as schools expanded their policies beyond the scope of the act, this intention was lost. Policies were created that required removal for actions that would often be considered typical behaviour for adolescents. For example, some schools established Zero Tolerance policies for drug and alcohol use, vandalism, non-traditional lipstick and hair colours, and dress code violations (Mitchell, 2014). These Zero Tolerance policies did not allow for consideration of individual circumstances or situations but instead took a one size fits all approach. This approach ignored the fact that every student has different social, emotional, and academic needs. It was thought that removing students who engage in disruptive behaviours would deter them and others from exhibiting the same behaviours in the future. Although some school administrators and teachers might argue that suspension and expulsions are necessary to keep order and teach

students not to engage in certain behaviours, these practices have the opposite results. Contrary to this belief, suspension is a risk factor for future misconduct and suspension (Reynolds et al., 2008). Recent research has shown that exclusionary discipline results in higher rates of arrest and increased offending (Hemez et al., 2019).

These policies have had unintended negative consequences for students that many states have yet to address. Students who are removed from schools typically fall behind their peers and are more likely to drop out of school. Often, they are not receiving an education while they are out of school because no policies require alternative education for students disciplined under Zero Tolerance. Removals also impact school climate because teachers and administrators focus on the punishment rather than understanding the underlying causes of the behaviour or the individual needs of the student. (Jones, 2013). As states begin to realise the harm that is caused by these policies and move away from them, there is room for new disciplinary approaches that are rooted in restorative practices and trauma-informed care.

Implications

Even though many studies have proven there are negative repercussions of exclusionary discipline, the 2018 Department of Education reports that 'approximately 2.7 million students experienced at least one out-of-school suspension during the 2015–2016 academic year' (Hemez et al., 2019, p. 235). This means that approximately 'one third of all students in the United States will receive at least one suspension by the time they graduate from high school' (Hemez et al., 2019, p. 235). That is just one small snapshot of the number of students affected by exclusionary disciplinary policies.

It is important to go a bit deeper into understanding some of the unintended consequences to which suspensions and expulsions may contribute. Research indicates that students who are suspended or expelled have a lower chance of graduating from high school, finding employment, or engaging in their communities in a positive way (Wadhwa, 2017, p. 4). In fact, students who are repeatedly suspended or expelled have a much higher chance of being sent to prison. This phenomenon, known as the 'school-to-prison pipeline', refers to the disproportionate likelihood of incarceration for students who are repeatedly suspended or expelled (Wadhwa, 2017, p. 4). 'The pipeline is the result of an array of policies and practices, fed by institutional racism' (Martin, 2020, para. 4).

One question that people often have when discussing the school-to-prison pipeline is, how do suspensions relate to this phenomenon? According

to a meta-analysis on this topic, Welsh and Little (2018) found '[...] that school exclusion is not an efficacious response to student misbehavior given the short and long term correlates with negative student educational and life outcomes.' Their analysis found numerous studies indicating that suspended students were much more likely to be involved in the juvenile justice system and, later, the criminal system. As mentioned previously, harsh school policies misuse suspension and expulsion; policies criminalise minor rule infractions; increased policing in schools creates prison-like environments and overuse referrals to law enforcement authorities (Martin, 2020). Hemez et al. (2019) examined this issue through a 'life-course perspective' and found that 'suspensions may serve as important antisocial turning points that reshape trajectories and usher youth toward incarceration later in life' (p. 250). Furthermore, this study provides empirical evidence 'that suspensions serve as a significant disciplinary conduit within schools through which the school-to-prison pipeline operates' (Hemez et al., 2019, p. 250). Therefore, it is no surprise that Black students are even more likely to be suspended and to be involved with the court systems as youths and as adults.

Studies have shown that nationwide, the students most impacted by the school-to-prison pipeline are students with a disability and Black students. In fact, Black, Latino, and Native American students were much more likely to be suspended or expelled for the same behaviours that their white counterparts (Wadhwa, 2017, p. 5). This racial gap was discovered in 1975 when the Children's Defense Fund found that 'suspension rates for Black students were two to three times those of white students' (Wadhwa, 2017, p. 5). Using data from the Houston Independent School District (HISD), Duffy (2018) found that 'Black students are 3.85 times more likely to receive either an in-school suspension or out-of-school suspension compared to white students. Although Latino students make up a majority of HISD, they are about 70% more likely to be disciplined compared to white students' (p. 6). It is important to reiterate that this data focuses on behaviour exhibited by all students but has shown that students of colour receive harsher disciplinary actions than their white counterparts.

According to data collected by the Office of Civil Rights, Black students are disproportionately suspended compared to white students. From 2017 to 2018, the total percentage of Black students enrolled in K-12 in the United States comprised 15% of the total population, but the data shows that 41.7% of the students who received a suspension were Black. The total percentage of white students in the US is 47.3%, but only 30% of white students received a suspension. (Figures 1 and 2) Black students miss over 4.6 million days of school per year. (OCR site)

Students who are vulnerable also face unfair disciplinary actions. Those who have experienced trauma, homelessness, are economically disadvantaged, or qualify for special education services are at higher risk of being suspended or expelled. For example, economically disadvantaged students are about 11% more likely to be suspended, and students who have experienced homelessness are 14% more likely to be suspended. Compared to their housed peers, homeless youth experience trauma at disproportionately high rates (Bende et al. 2010).

Research has shown that there is a relationship between children who have experienced trauma and problematic behaviour in school. Loomis (2020) suggests that younger children who are exposed to family violence are more likely to exhibit 'acting out' behaviours, which puts them at higher risk for suspension and expulsion. Responses to traumatic experiences vary from person to person, but the links between students who have experienced trauma and behavioural and emotional challenges are important for schools to understand and consider before suspending or expelling a student from school.

Despite laws protecting students in special education, Duffy found that students receiving special education services were about 10% more likely to be suspended than peers not receiving such support. These are students protected under the Individuals with Disabilities Act (IDEA), which requires schools to consider if the offending behaviour is related to their disability. According to an analysis of data found through the Office of Civil Rights (OCR), the total percentage of students protected under IDEA in the US is 13.2% of the total population, but 24.4% of the students who received a suspension were students receiving Special Education services (Figure 3). (OCR site) Similar to students of colour, students with a disability who are supposed to be protected under IDEA are disproportionately receiving school suspensions. Figure 4 is a visual representation of the student population disaggregated by race and disability status and, looking at the same categories, the percentage of students suspended for one or more days. Ideally, the percentage of total students would be similar to that of students suspended. This graph clearly depicts the inequities that exist within the school discipline system.

Figure 1

Black student suspension to population

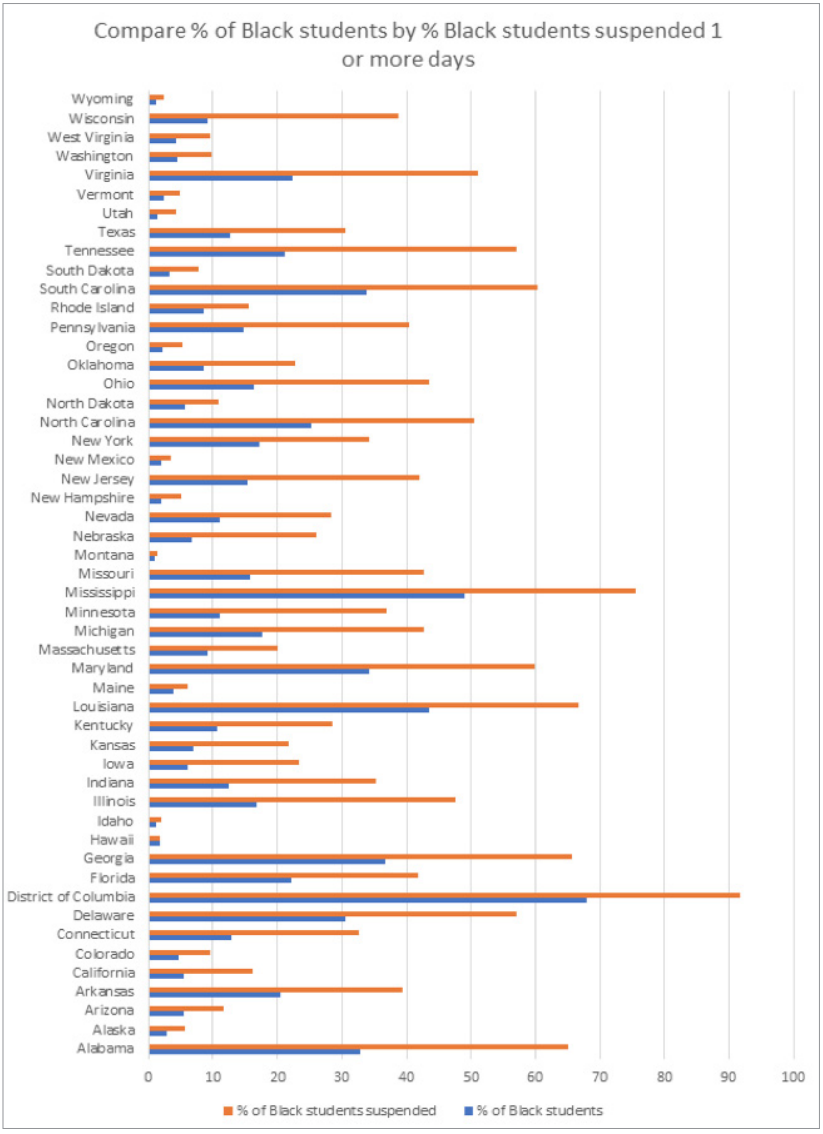


Figure 2

White student suspension to population

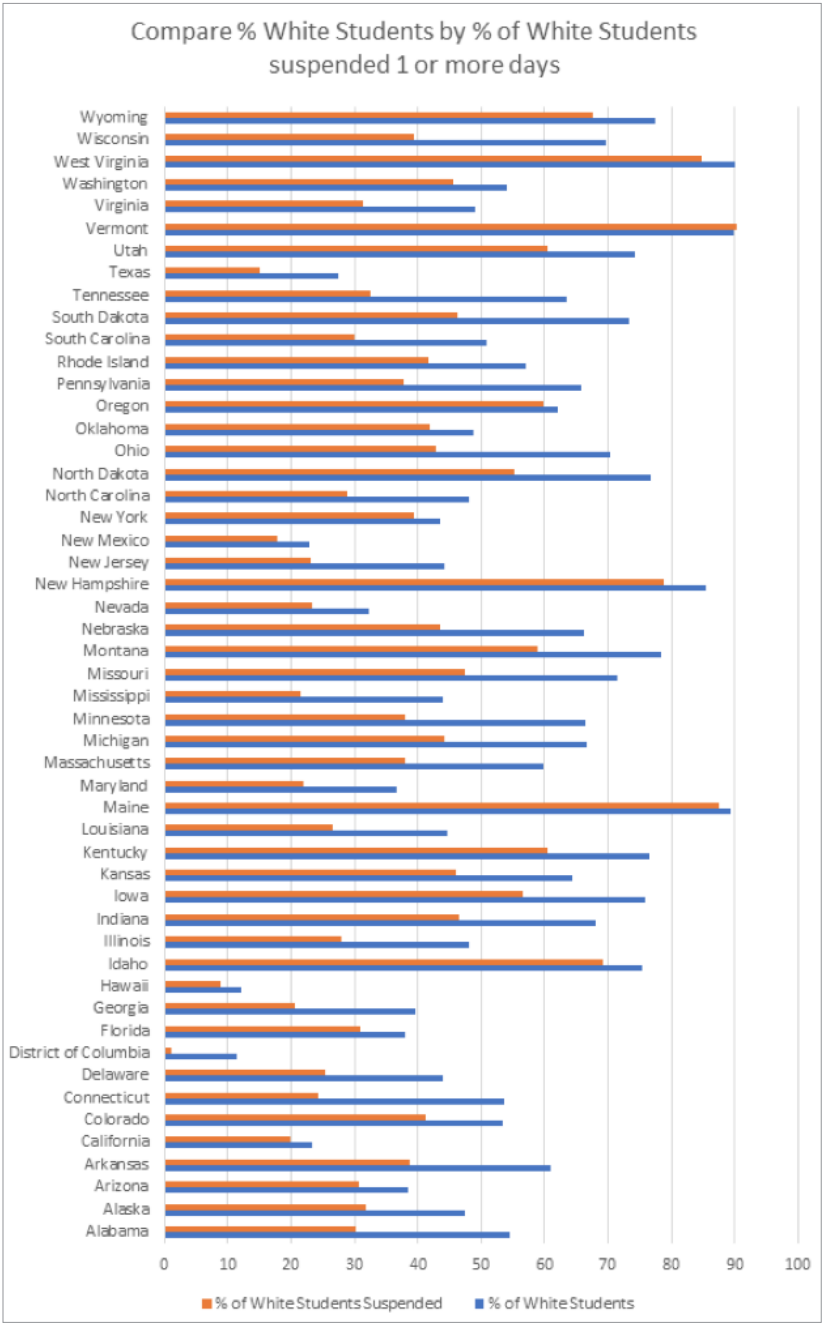


Figure 3

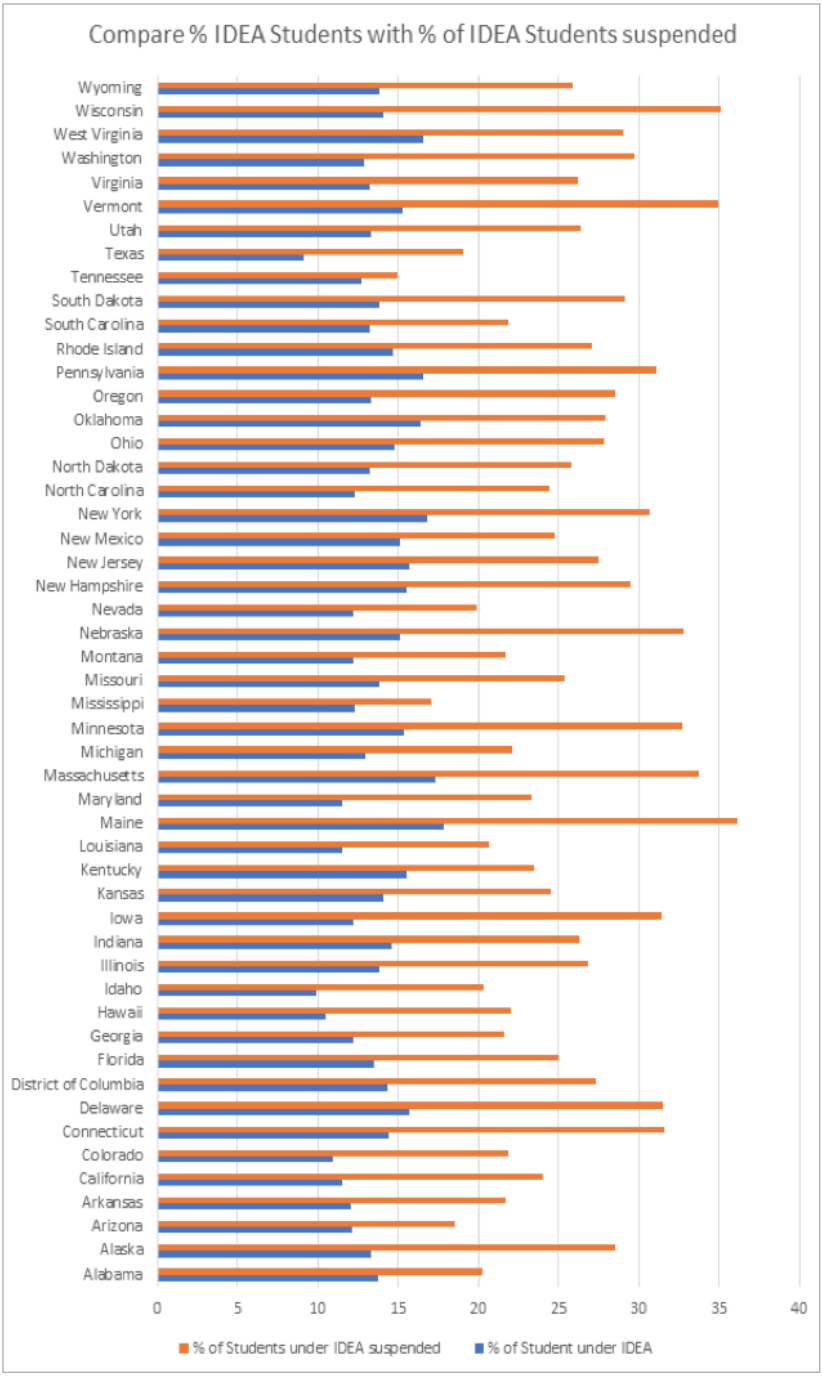
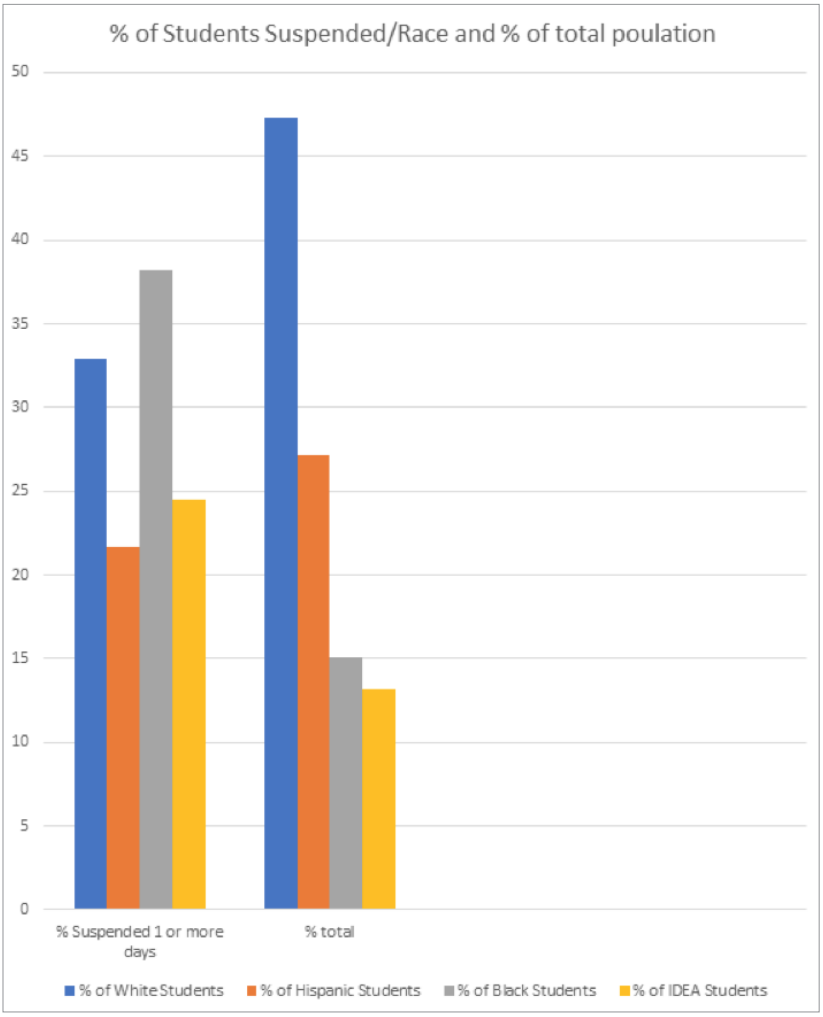

Compare % IDEA Students with % of IDEA Students suspended
Wyoming
Wisconsin
West Virginia
Washington
Virginia
Vermont
Utah
Texas
Tennessee
South Dakota
South Carolina
Rhode Island
Pennsylvania
Oregon
Oklahoma
Ohio
North Dakota
North Carolina
New York
New Mexico
New Jersey
New Hampshire
Nevada
Nebraska
Montana
Missouri
Mississippi
Minnesota
Michigan
Massachusetts
Maryland
Maine
Louisiana
Kentucky
Kansas
Iowa
Indiana
Illinois
Idaho
Hawaii
Georgia
Florida
District of Columbia
Delaware
Connecticut
Colorado
California
Arkansas
Arizona
Alaska
Alabama
0
5
10
15
20
25
30
35
40
% of Students under IDEA suspended
% of Student under IDEA

Figure 4
Students with a disability suspension to population and comparison by race



Current Practices

There is little evidence suggesting that Zero Tolerance policies, defined as strict policies that require an exclusionary disciplinary response to specific behaviours and actions, are effective, and yet, two thirds of the United States have state-wide policies requiring suspension or expulsion for certain offences. These policies do not consider individual situations and circumstances, even

though both can influence behaviour. This creates a system of equality rather than an equitable system that would approach each situation by looking at the individuals involved and their needs. Through a comprehensive review of the school discipline laws in each state as of January 31, 2020, there are 33 states (Figure 5) with Zero Tolerance policies for offences beyond the federal requirement of expulsion for firearm possession and use. Depending on the state, offenses range from incidents involving the use or possession of a weapon to non-violent offenses such as drug use or possession (White & Young, 2020). In addition, four states explicitly state in their school codes that it is the responsibility of the school boards/districts to determine their own regulations regarding school discipline, which includes mandatory suspensions/expulsions.

According to data from the Pew Research Center looking at political ideology by state, 60% of the states with Zero Tolerance policies are conservative-leaning (2014). Many education bills that are introduced in Congress are bipartisan, but there are key differences in the conservative and liberal approaches to school discipline. The conservative viewpoint on crime has consistently supported punitive approaches and emphasised the use of punishment as a deterrent. Conservative school policies take a similar approach by supporting policing in schools and the use of strategies that punish delinquent behaviour (Guo, 2020). These policies tend not to focus on equity and overlook the racial gaps that need to be addressed in school discipline policies. The liberal approach is often focused on reform efforts that are aimed at dismantling the school-to-prison pipeline. Policies based on a liberal viewpoint usually address racial disparities in school discipline with the goal of shaping an equitable school system (Guo, 2020).

During our review of school policies across the country, we searched for mention or required use of restorative practices and other alternative approaches. Twelve states recommend restorative practices as a form of alternative discipline or as an optional training topic for staff and resource officers in their school discipline laws and regulations, but very few have specific requirements on the use of alternative discipline. Only ten states have made policy changes establishing training and/or implementation requirements for restorative practices. (See Figure 6)

Restorative Justice is not a new concept or practice. In fact, restorative practices have existed for centuries, commonly used by Native Americans and other indigenous societies across the globe (Brown, 2020). For example, indigenous communities would often settle conflicts and disputes using 'restitution negotiations'. Conflicts between people were resolved by repairing the harm done through agreed-upon compensation or resolution. The goal of these

meetings was to prevent revenge and restore peace in the community (Kohli, 2019).

It can be challenging to define Restorative Justice because it is a concept. However, there are some common themes and main concepts. According to Zehr (2015), the three main concepts include: a) focusing on the harm done, b) understanding these harms result in obligations, and c) promoting engagement and participation. Correspondingly, Song and Swearer (2016) found that restorative justice consists of three principles: a) relationships and their harms, b) empowerment of all persons, and c) collaboration. From these concepts, one can conclude that the inclusion of students and relationships between those harmed and those who have been harmed are important (Kohli, 2019).

More recently, schools have adopted Restorative Justice to respond to the growing rates of suspension and expulsion. Since it is a concept, effectively integrating it into schools can be challenging. Some schools tend only to want to use Restorative Justice practices for disciplinary actions, not incorporating the change of mindset and preventative interventions that Restorative Justice interventions in schools encompass. Restorative practices can include prevention, teaching students social and emotional skills, and being an environment where all are valued, heard, and understood. Merely focusing on using Restorative Justice practices, such as a restorative circle when a child has misbehaved, is unlikely to make the kind of impact needed to reduce suspension and expulsion (Song & Swearer, 2016). Restorative practices aim to improve the school climate in totality.

Of these 12 states, five take a seemingly contradictory approach to school discipline by having Zero Tolerance policies and requirements for restorative practices. For example, in Louisiana, a state with Zero Tolerance policies, school staff are provided with training on restorative practices as part of their plan for improving student behaviour. While the staff is trained on restorative practices, there is no obligation for them to implement practices in their classrooms or school discipline policies. California, another Zero Tolerance state, requires the use of other means of correction, which may include restorative justice programmes. Suspension would only be imposed if the other means of correction fail to correct the behaviour ('School Discipline Laws & Regulations by State', 2020). The presence of Zero Tolerance policies means there are students who do not have protections.

Zero Tolerance policies continue to define school discipline in New Jersey; however, at the beginning of 2020, they began to shift toward alternative approaches. A bill was signed into law creating the 'Restorative Justice in Education Pilot Program'. This three-year pilot programme will implement

trauma-informed restorative practices in 15 schools throughout the New Jersey school system. The goal is to reduce racial disparities in school discipline, improve the socio-emotional and behavioural development of students and reduce recidivism rates. Using the pilot programme method will allow the state to track and document successes and areas for improvement with the implementation and use of restorative justice. Following the pilot programme period, the Commissioner of Education will provide a recommendation on whether to expand restorative practices to schools throughout the state (School Discipline Laws & Regulations by State, 2020). If New Jersey sees promising results from this programme, it will create an opportunity for policy change and push the state government to rethink its punitive Zero Tolerance approach.

In Vermont and Colorado, where they have opted for alternatives to Zero Tolerance policies, their approach to restorative practices involved implementation research, reports, and recommendations. The Vermont Agency of Education was required by legislation passed in 2016 to explore the use of restorative practices. They compiled a comprehensive resource guide containing research on the effectiveness of restorative practices and best practices for implementation. In addition, the guide provided recommendations for improving and increasing the use of restorative practices for schools already using the approach ('School Discipline Laws & Regulations by State', 2020). Colorado established the Restorative Justice Coordinating Council, whose role was to support the development and implementation of restorative justice programmes. In addition, the council assisted in the creation of state-wide guidelines, training recommendations, and standards of best practice for schools to utilise to guide their programmes ('School Discipline Laws & Regulations by State', 2020). Vermont and Colorado have established policies with requirements that are focused on research and education rather than implementation. While the Restorative Justice resources that these states have created are comprehensive and likely beneficial, schools are under no obligation to implement these practices.

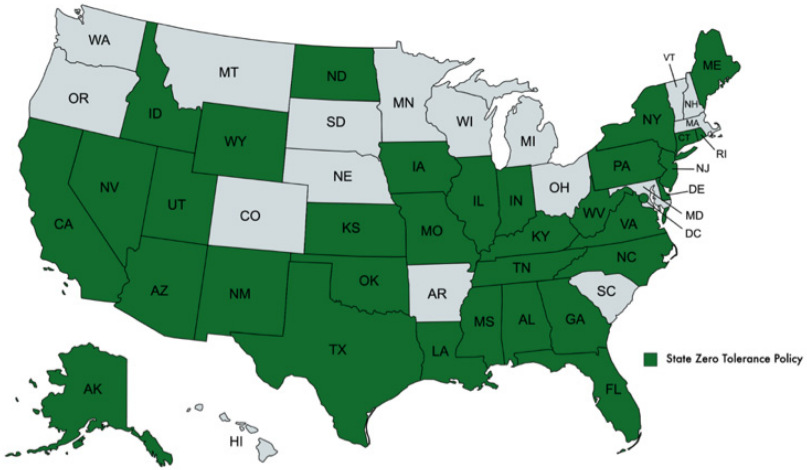
In 2016, Michigan eliminated Zero Tolerance and revised its school code to include a section on restorative practices. This new section requires the school board to consider using restorative practices as an alternative or in addition to suspension or expulsion. This policy illustrates a clear shift away from punitive exclusionary practices and creates a space for alternative approaches to school discipline ('School Discipline Laws & Regulations by State', 2020). In addition, Michigan's legislation contributed to a change in the mindset of the state education system by putting the focus on meeting student needs.

Minnesota, a state with no Zero Tolerance policy, created the Restorative Practices School Implementation Guidance in 2020. Each district is required

to establish policies and procedures that include restorative practices, and the implementation guide can assist with successfully incorporating these practices into their school community. The guide is designed to support schools in strengthening the school climate through a change in mindset and provides a step-by-step implementation guide to aid in easing the transition to a restorative school. The purpose of the guide is to help schools navigate this systematic change and approach implementation with an equity lens. Utilising an equity lens can bring unintended consequences to light, ensure that all perspectives have a voice and are represented and focus on groups that have historically been negatively impacted by policies, programmes, or decisions (Minnesota Department of Education, 2019). Currently, Minnesota is the only state that explicitly discusses the importance of equity in the education system and its role in restorative practices.

Figure 5

Zero Tolerance Policy by State*



Note. *Zero Tolerance refers to any state that has mandatory suspension or expulsion for offences beyond the federal firearm requirement.

Figure 6

Zero tolerance-restorative justice requirements by state

State	Zero Tolerance + mandatory suspension or expulsion for offences beyond the Federal firearm requirement.	Zero Tolerance determined by district per school code	Restorative Justice Requirements	Restorative Justice Mentioned or Recommended
Alabama	X			
Alaska	X			
Arizona	X			
Arkansas		x		
California	x		x	
Colorado			x	
Connecticut	x			
Delaware	x			
Florida	x	x		x
Georgia	x			
Hawaii				
Idaho	x			x
Illinois	x			x
Indiana	x			
Iowa	x			
Kansas	x			
Kentucky	x			
Louisiana	x		x	
Maine	x			x
Maryland		x	x	
Massachusetts				x
Michigan			x	
Minnesota			x	
Mississippi	x			
Missouri	x			
Montana				
Nebraska				x
Nevada	x		x	
New Hampshire				
New Jersey	x		x	
New Mexico	x			x
New York	x			
North Carolina	x			
North Dakota	x			
Ohio				
Oklahoma	x			
Oregon				
Pennsylvania	x			x
Rhode Island	x			
South Carolina				x

State	Zero Tolerance + mandatory suspension or expulsion for offences beyond the Federal firearm requirement.	Zero Tolerance determined by district per school code	Restorative Justice Requirements	Restorative Justice Mentioned or Recommended
South Dakota		x		
Tennessee	x			x
Texas	x		x	
Utah	x			x
Vermont			x	
Virginia	x			
Washington				x
West Virginia	x			
Wisconsin				
Wyoming	x			

Conclusion

As Maya Angelou once said, 'You can't really know where you're going until you know where you have been' (Maya Angelou quotes to live by, 2022). It is crucial to know the history of Zero Tolerance policies, their intended purpose, and the damage these policies had and continue to have on vulnerable students. Numerous studies and personal stories detail the negative impact of these policies. It is apparent from the most current data that Black students, students with a disability and students who are economically disadvantaged are more likely to be suspended from school. These students are being suspended for offences for which their white or more affluent counterparts are not.

As mentioned in this article, even with the overwhelming evidence of the harm Zero Tolerance policies cause, restorative practice requirements have only recently been included in state policy, which means that many states do not yet have data supporting their new policy requirements. However, if prior research is any indication, then the implementation of requirements for training on and the use of restorative practices should reduce the number of suspensions and expulsions as well as reduce the disproportionality for students of colour and students with a disability in the school discipline system. Through bipartisan efforts, states must work to eliminate Zero Tolerance policies and implement new policies that include restorative approaches and alternative forms of intervention aimed at supporting and benefitting the student population. That is not to say that schools should not ever use expulsions; however, expelling a student for 180 days should only be used as a last resort, and there should be clear guidelines and processes in place to ensure that students have access to free and appropriate public education.

Creating an equitable school discipline system begins with eliminating

Zero Tolerance, but there must be new policies that include strategies and interventions focused on restorative approaches. There is more work to be done in this area, but system-wide change is challenging and slow. Common sense tells us that if there is more investment in children, it will save money and effort in the future. If students are provided more support in school, then it makes sense that fewer will find themselves without prospects and end up incarcerated. Unfortunately, until these changes are implemented with fidelity, the students who are vulnerable will continue to be suspended and find themselves trapped within the school-to-prison pipeline.

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Recognising and Expressing Emotions: Difficulties of Children with Autism Spectrum Disorder in Learning a Foreign Language and How to Resolve Them

Ayşe Tuna[1]

Recognising emotions, facial expressions and tone of voice and body language, expressing and managing their own emotions, and understanding and responding to other people's emotions are often difficult for children with autism spectrum disorder. Since the emotional codes of individuals with autism spectrum disorder are different, those people will possibly be awkward in expressing some throughout their lives. Although it might seem that children with autism spectrum disorder do not respond emotionally, the ability to understand their facial expressions could lead to an improvement in their social interaction difficulties. In addition, since autistic expressions might be unique to each child, recognising their emotions is important when delivering a personalised intervention to a child with autism spectrum disorder. In recent decades, researchers have become increasingly interested in the role of emotions in learning and teaching a foreign language beyond heavily investigated topics such as foreign language anxiety and motivation and attitudes towards the foreign language. In this paper, how emotions impact the motivation and success of children with autism spectrum disorder while they are learning a foreign language is presented. Challenges, opportunities and future research directions in this domain are given.

Keywords: autism spectrum disorder, emotions, recognition, foreign language

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Prepoznavanje in izražanje čustev: težave otrok z motnjo avtističnega spektra pri učenju tujega jezika in kako jih rešiti

Ayşe Tuna

Prepoznavanje čustev, obrazne mimike in tona glasu ter govorice telesa, izražanje in obvladovanje lastnih čustev ter razumevanje in odzivanje na čustva drugih ljudi so za otroke z motnjo avtističnega spektra pogosto težavni. Ker so čustvene kode posameznikov z motnjo avtističnega spektra drugačne, bodo mogoče ti posamezniki v svojem celotnem življenju okorni pri izražanju nekaterih emocij. Čeprav se mogoče zdi, da se otroci z motnjo avtističnega spektra ne odzivajo čustveno, lahko zmožnost razumevanja njihove obrazne mimike pripelje do izboljšanja njihovih težav pri socialni interakciji. Nadalje, ker so avtistični izrazi lahko edinstveni za vsakega otroka, je prepoznavanje njihovih čustev pomembno pri izvajanju prilagojene intervencije za otroka z motnjo avtističnega spektra. V zadnjih desetletjih se raziskovalci vedno bolj zanimajo za vlogo čustev pri učenju in poučevanju tujega jezika, ne le za močno raziskane teme, kot so: strah pred tujim jezikom ter motivacija in odnos do tujega jezika. V tem prispevku je predstavljeno, kako čustva vplivajo na motivacijo in uspeh otrok z motnjo avtističnega spektra pri učenju tujega jezika. Podani so izzivi, priložnosti in prihodnje raziskovalne usmeritve za to področje.

Ključne besede: motnja avtističnega spektra, čustva, prepoznavanje, tuji jezik

Introduction

People with autism spectrum disorder (ASD) have persistent difficulties in social communication and interaction, including deficits in empathy, facial expression, eye contact and body language, and have a lack of interest or difficulties in making friends and social relationships (American Psychiatric Association, 2013). In addition, they exhibit restricted and/or repetitive patterns of interests, behaviour, or activities, such as fixation on certain topics and insistence on rigid routines.

Moreover, atypical responses to sensory stimuli are a new criterion in DSM-5 for the diagnosis of ASD. Atypical sensory behaviour can be manifested in the form of hyper- or hypo-reactivity to sensory input or unusual sensory interests. For example, some people with ASD are sensitive to noise and have a high pain threshold (Allely, 2013). People with ASD exhibit disorders of various levels in terms of social skills, speech and nonverbal communication, interests, and behaviours. As a result of many genetic and environmental factors, each person with autism has some strong points and challenges. Therefore, while some people with ASD need extensive support in their daily lives, the remaining need less support or even can live independently.

When applying an autism screening test, clinicians examine the children's social and communication behaviours (Randall et al., 2018). Since the test depends on the clinicians' subjective perspectives, further diagnosis is required from a paediatrician, psychiatrist, or other professionals. While a diagnosis of ASD plays a key role in the intervention, making an incorrect diagnosis can make the situation worse (Guthrie et al., 2013). While there were different groupings in the past, nowadays, a single diagnosis with a range of severity is made (American Psychiatric Association, 2013). It was shown that the early, accurate diagnosis of ASD is highly important (Crais & Watson, 2014). Although ASD diagnoses are obvious in some cases, they are ambiguous in others. Therefore, further investigation is required to identify the strengths and weaknesses of the subject (Lockwood Estrin et al., 2021). For instance, genetic and metabolic causes should be searched for in cases of intellectual disability and other behavioural problems (van Karnebeek & Stockler-Ipsiroglu, 2014). The assessment for this typically involves a few or all of the following tests: a physical examination, brain scans, blood tests, a family and developmental history, an assessment of the child's experience of school, an assessment of parenting and family dynamics, psychometric, communication, speech and language testing, and hearing tests (Huerta & Lord, 2012).

Currently used methods such as for clinical diagnosis of ASD are based on clinical judgement and DSM-5 criteria (American Psychiatric Association,

2013) with or without data obtained using diagnostic tools based on behavioural observation such as the Autism Diagnostic Observation Schedule – 2nd edition (ADOS-2) (Lord et al., 2012) and the Childhood Autism Rating Scale – 2nd edition (CARS-2) (Schopler et al., 2010) or diagnostic tools based on parent/caregiver interviews such as the Autism Diagnostic Interview-Revised (ADI-R) (Lord et al., 1994), Social Responsiveness Scale – 2nd edition (SRS-2) (Constantino & Gruber, 2012), Diagnostic Interview for Social and Communication Disorders (DISCO) (Wing et al., 2002), Developmental, or Dimensional and Diagnostic Interview (3di) (Brian et al., 2019). These tools might be deemed subjective, time-consuming, and costly. Therefore, computer-assisted diagnostic techniques proposed for the diagnosis of ASD have received increasing attention in recent years. A common conclusion of most of those studies is that the predictions become stronger when data from both of a child's parents are combined rather than from only one parent (Rahman et al., 2020). As the results of the classification studies realised in this domain prove, when reliable and accurate datasets with sufficient attributes are available, it is possible to predict whether a child has ASD or not by using software-based tools. However, in a clinical setting, independent confirmation of the decision made for each child by an experienced specialist is required (Wingfield et al., 2020). Although early identification and timely treatment of children with ASD considerably improve potential outcomes, specific evidence should be provided to individualise treatment recommendations. If routinely measured in a clinical setting, biomarkers could transform clinical care for diagnosed children (Bridgemohan et al., 2019). When an intervention is applied, positive responses can range from extremely limited to dramatic. This is due to possible moderators of individual responses, including the child's characteristics, symptom severity, and age at the onset of the intervention (Zwaigenbaum et al., 2015). The main reason for this is the fact that ASD is a complex and heterogeneous disorder, clinically, biologically, and etiologically. Therefore, while some individuals with ASD respond to specific interventions quite well, others do not. Given the complexity of the disorder and the fact that symptoms and severity vary, there are probably many causes. This makes it necessary to understand the cause(s) of their disorder in addition to the associated neurobiological mechanisms working in each case (Zwaigenbaum et al., 2015). Some genetic and neurobiological groups are known to be associated with ASD. Children with duplication 15q, fragile X syndrome, and tuberous sclerosis are the most well-known groups (Campbell et al., 2009).

A promising short-term, problem-focused treatment approach for children with ASD who have other mental health conditions, such as anxiety or depression, is cognitive behavioural therapy (Wood et al., 2009). The main idea

behind this approach is to teach children to change how they think about a situation via its cognitive component and then help them change how they react to a situation via its behavioural component. When this approach is applied successfully, the children and their parents acquire skills to cope with difficult situations. Wood et al. (2009) tested a cognitive behavioural therapy based on an evidence-based treatment for children with ASD who also have comorbid anxiety disorders. As a result, the remission of anxiety disorders was achieved in the treatment group.

Emotions can be conveyed through facial expressions, voice, and body movements and positions. Like typically developing children, children with ASD feel emotions and attempt to communicate them to other children around them. Nevertheless, they often have challenges recognising some facial expressions and expressing themselves. Because emotions are sometimes difficult to understand and interpret, it is normal for typically developing children to have some difficulties in understanding and interpreting the emotions transmitted by children with ASD. It was shown that individuals with ASD are often unsuccessful in reacting appropriately to the emotions of others, and impairment in recognising emotional expressions might contribute to these inappropriate reactions (Rump et al., 2009). In addition, individuals with ASD have deficits in social cognition and might be awkward in expressing some emotions throughout their entire lives (Isaksson, 2019). Although neurotypical individuals can pass on emotions through gestures, individuals with ASD often have difficulty verbalising what they are feeling in an appropriate manner. Therefore, enough time should be spent to listen to an individual with ASD and understand what they mean.

If others are able to read their emotions properly and react appropriately, children with ASD will possibly be able to gain more self-confidence and attempt to do their best to develop their emotional language further. In addition, children with ASD generally have difficulty communicating by understanding and imitating the emotional expressions of others; therefore, understanding their own emotions and interpreting them properly are often difficult for them. In many ways, children with ASD recognise different emotions, and some are more difficult to analyse than others. Emotional misunderstandings with typically developing peers create painful experiences and result in trauma in individuals with ASD. Nevertheless, there are a limited number of intervention methodologies to deal with this situation. Robinson (2018) proposed a novel case conceptualisation model for emotion-focused therapy for individuals with ASD and illustrated it with an example. Based on a sequence of emotional processing steps, the proposed model describes the transformation of problematic emotion structures. In this manner, emerging adaptive emotions help a person

understand his/her mental state and those of others, strengthening both intrapersonal and interpersonal agency.

Individuals with ASD are disadvantaged if the general demands of society are considered. As a result, many individuals with ASD have serious difficulty attaining a minimum level of social integration that is a must for acceptable quality of life (Bishop-Fitzpatrick et al., 2015; Ginsberg et al., 2014). The ability to recognise facial expressions of emotion plays a key role in establishing interpersonal connections early in life, because doing so is essential to understanding the intentions and feelings of other individuals (Ekman, 2003).

Emotion Recognition and Expression Difficulties of Children with ASD

When children are diagnosed with ASD, they are diagnosed at a level of 1, 2, or 3, depending on the severity of existing symptoms. Children diagnosed with Level 3 ASD show difficulties with eye contact; therefore, a protocol starting from the basic level must be followed. Eye contact is an essential skill to obtain a person's attention and communicate with someone involved in a conversation or dialogue. However, it alone is not sufficient. Children also need to acquire oral and gestural communication skills. If children complete the protocol correctly, they will explore the next levels. Children diagnosed with Level 2 ASD may already show eye contact skills, but they are still not able to carry out tasks requiring joint attention. Compared to typically developing children, children with ASD show limited joint attention. This is associated with the lack of language and imitation skills indispensable in social communication. Imitating body movements of other individuals requires body imitation ability, but children with ASD also have impairments with this. Compared to typically developing children, children with ASD exhibit non-typical facial activity in response to facial expression stimuli, and they are less reactive to basic facial expressions, such as sadness, happiness, fear, and disgust. Therefore, the therapy is mostly started from one of the joint attention exercise levels. Children diagnosed with Level 1 ASD usually do not need to practice eye contact skills, attention exercises, or body imitation skills. Therefore, the therapy could be directly started with expression exercises to teach to recognise and imitate facial expressions.

From an early age, children with ASD typically demonstrate reduced interest in other people's emotional behaviours and faces (Dawson et al., 2012). The lack of joint attention is one of the most important early indicators of ASD. Due to the lack of joint attention, preschool children with ASD do not often use words to direct the attention of their peers or other individuals. Due to the same

problem, young children with ASD sometimes do not tend to point out interesting things to their peers or other individuals by using eye gaze, sounds, words, or gestures or do not respond to and focus on interesting things pointed out to them.

Children with ASD often have some difficulties in using emotion to understand social interactions. They may not notice and share other people's emotions. In addition, children with ASD may read situations inaccurately and respond with emotions that look awkward. It has been shown that in many social processes, identification of other people's emotions from facial expressions is crucial (Clark et al., 2008). For example, a child with ASD may not show interest in comforting a sibling who falls over or may even laugh. It has been shown that babies later diagnosed with ASD can express feelings almost in the same way as typically developing babies.

Additionally, by school age, children with less severe ASD might express their feelings in a very similar manner to typically developing children, but they have difficulty describing their feelings. In contrast, at the same age, many children with more severe ASD seem to have and demonstrate less emotional expression than typically developing children. For instance, they might become angry very quickly or cannot calm down from strong emotions. Although almost all individuals with ASD have significant impairments in emotion recognition skills to some degree: the older ones seem to have better skills than the younger ones (Kuusikko et al., 2009). Therefore, emotional development in children with ASD should be encouraged, because they can acquire skills in recognising and managing their emotions if they are helped. For instance, everyday interactions could be used to help children with ASD learn about emotions and also improve their ability to express and respond to various emotions.

Deficits in understanding and expressing emotions in facial affect, tone of voice, and body could result in social exclusion, peer rejection, and bullying (Berggren, 2017; Frith & Frith, 2003). Eventually, these negative social experiences might lead to low occupational attainment, poor social relationships, and an elevated risk of psychiatric disorders (Howlin et al., 2004; Taylor & Seltzer, 2011). Moreover, it has been shown that it is difficult for most adolescents with ASD to establish meaningful relationships or romantic relationships later in life (Berggren, 2017; Bishop-Fitzpatrick et al., 2015). A lower degree of self-confidence and self-determination, a higher degree of dependence, and a higher degree of dependence on family are common in individuals with ASD (Wehman et al., 2014).

Although children spend a considerable amount of time at school, most schools lack effective strategies for the inclusion of children with ASD. Therefore, the emotion recognition and processing challenges of children with ASD should

be considered when developing effective inclusion strategies (Berggren, 2017). Due to the difficulties in emotion recognition, children with ASD have significant difficulty interacting. Therefore, they are generally socially isolated and feel alone (White et al., 2007). As a result, if they do not receive appropriate and effective intervention, they have a higher risk of developing secondary psychiatric conditions compared to typically developing children (White et al., 2011).

Difficulties in social skills, including emotion recognition, negatively affect children with ASD in terms of their development and ability to perform at school (Vadnjal & Radoja, 2020). In contrast, strong social skills lead to less internalising and externalising problems in classrooms (Henricsson & Rydell, 2006), and poor social skills are potential risk factors for anxiety and depression (Segrin & Flora, 2000). Therefore, various intervention strategies have been developed to promote the prosocial behaviours of children with ASD. One of the most effective is social skills training, which consists of a broad range of education techniques, including social stories, social problem solving, peer-mediated interventions, video modelling, and scripting procedures (Reichow et al., 2013).

Difficulties that Children with ASD Have in Learning a Foreign Language

Individuals with ASD have significant impairments in social interaction skills. Since they have difficulties in social conversation and frequently feel discomfort around other individuals, they can behave in a rude or offhand social manner (Wire, 2005). They may sometimes want to work in a group or pair but do not have the appropriate skills to do so; therefore, they are disinterested in it, even dislike it, and strongly prefer to be allowed to work alone and independently. As well as these, they have unusual social communication characteristics. Their voices may be too loud or soft, and their speech may be garbled and long-winded or too brief. During their speech, the echoing of phrases and words is experienced by others. Another challenge from the point of view of social communication is that direct eye contact with others is difficult for some individuals with ASD. Therefore, they may focus on a point beyond the face or on the mouth. Children with ASD show diminished responses to social stimuli and gaze cues. Consequently, they are unresponsive to the social signals sent by other individuals. They also have difficulties perceiving the eyes of other individuals as socially salient. Due to this, children with ASD seldom establish eye contact; therefore, they have impairments in social attention and have difficulties in both communication and interaction with other individuals. As a result of this, they have significant social and academic problems.

Moreover, the lack of flexibility, a prominent characteristic of ASD, can be seen in individuals with ASD in varying ways. It is seen in the form of difficulty that most individuals with ASD have when dealing with change. Restricted, repetitive patterns of behaviour, interests, or activities are related to the lack of flexibility. For instance, it is difficult for them to become used to a new subject, new teacher, and new school, which takes considerable time. Since they do not like it if someone varies their routines, warning them in an appropriate form before such a situation could be useful (Wire, 2005). The lack of flexibility is sometimes viewed in the form of a strict appliance of different rules, which sometimes contend with established class rules. For example, some students with ASD do not want anyone else writing in their exercise books or using different colours of pencils, or they want to see that their books and pencils are neatly lined up on their desks. They may become upset if they cannot sit in particular chairs. As a result of these kinds of difficulties, children with ASD may be highly distracted in foreign language classes.

Since children with ASD find processing verbal information difficult, in the case of many instructions given in a foreign language by their teachers without sufficient visual support presented on the board, they may fall behind. They may not have heard and then cannot follow the given instructions. Consequently, if they are challenged to become organised quickly, they may anger the teacher by speaking back (Wire, 2005). Some researchers claim that children with ASD have some strengths in connection to learning a foreign language; they are visual learners with excellent visual long-term memory (Tissot & Evans, 2003), which can be very beneficial. However, Trembath et al. (2015) found no evidence of a prominent visual learning style in children with ASD.

Since their pace in doing tasks are generally slower than their typically developing peers, children with ASD may fall behind and become withdrawn from the language classes even if they are being prompted and motivated to continue with sufficient support from their teachers. In addition, they have significant difficulty understanding that words and phrases may have more than one meaning. If all the above-mentioned autistic characteristics are not tackled well, they may result in stress and difficulties accessing the curriculum (Wire, 2005). Consequently, much stress builds up for both the children with ASD and their teachers, and the desired goals of the learning process cannot be achieved.

Challenges

As well as emotion-related challenges, other factors or features may affect the academic performance of children with ASD. For instance, impaired gross

motor skills mainly affect their competence in physical education; moreover, poor fine motor skills may lead to laboured and slow writing, a slow working performance compared to the rest of the class, or even being reluctant to do any writing at all. Some children with ASD may also have a diagnosis of dyspraxia. For them, assistive technology devices such as a notebook may be useful in lessons. Some children with ASD may have also been diagnosed with attention deficit hyperactivity disorder; therefore, they may have poor concentration and present quite disruptive behaviours. Moreover, some also have a specific dyslexic learning difficulty; therefore, it is much harder for them to read in a foreign language and learn vocabulary. This can quickly cause frustration in foreign language learning and resistance to the foreign language. Crombie and McColl (2001) proposed a multi-sensory approach to children with dyslexia, including those with ASD.

Educational scholars have stated that emotions have a key role in motivating to learn (Bown & White, 2010; Garret & Young, 2009; Imai, 2010), because emotional experiences influence students' motivation significantly. Since emotions impact the motivation of foreign language learners by activating or deactivating motivational behaviour (Pekrun et al., 2000), Méndez López (2011) conducted research in Mexico to show the effects of the role of emotional experiences on the motivational behaviour of students and reported that in this regard emotional experiences have a considerable role during classroom instruction. It was proved that motivation is dynamic and evolving, and students can turn negative situations they experience into positive outcomes, because negative activating emotions affect motivation maintenance by triggering the motivational behaviour of students to deal with negative emotions in future academic tasks (Méndez López, 2011; Ryan & Deci, 2000). Negative emotions allow students to re-evaluate the events and accordingly adjust their motivation. Such a reflection process includes an attribution stage, in which learners explain to themselves why the event led to the emotion they experienced (Weiner, 1992). While negative emotions have an immediate negative effect on the motivational energy of students and result in task avoidance and even withdrawal from class activities, subsequent reflection allows the students to deal with that negative impact successfully and to re-energise themselves in order to resume their learning processes (Méndez López, 2011).

Many foreign language teachers have students struggling with learning in their classrooms. Foreign language teaching issues can contribute to teachers' anxiety about whether to launch a referral process for special education and how to implement and manage intervention programming (Dunn & Ernst-Slavit, 2018). In this regard, considering the important role of teacher beliefs in language teaching (Kubanyiova & Feryok, 2015), Barcelos and Aragão (2018)

discussed the findings of studies on teacher emotions carried out with both pre-service and in-service teachers of English in Brazil. Their study focused on the kinds of emotions of both pre-service and in-service teachers of English and on the relationship between emotions and beliefs in foreign language teaching. The results showed the diversity of emotions the teachers experienced during their teacher education and how those emotions interact in complex and dynamic ways with their beliefs about teaching English as a foreign language.

Opportunities

Humanoid robots are service robots shaped like human beings and designed to mimic human motion and interaction; therefore, they can interact with humans and their environments better. Although humanoid robots and social robots are sometimes used interchangeably, social robots are able to interact with humans and each other in a socially acceptable fashion and convey intention in a human-perceptible way (Breazeal, 2003). It has been shown that the coexistence of humanoid/social robots and humans may be beneficial, and several benefits can be achieved. For instance, humanoid/social robots can be used to support teachers and students by providing advice on routine, common questions and problems and offering assistance on issues that cannot be handled with simple Frequently Asked Questions (FAQ) systems. In this manner, the robots can promote teaching and learning processes. Humanoid/social robots can also be used to provide information services for users of facilities and offer advertisement services. The assumption is that, unlike basic FAQ systems, humanoid robots productively and effectively interact with humans with three special strengths (SoftBank Robotics & ERM, 2021). First, humanoid robots can have embodied multi-modal dialogues with humans in their familiar environment by combining posture, movement, language, facial expressions, eye contact, and gestures. Second, humanoid robots can cope with human emotions intelligently. Third, humanoid robots are able to build relationships with humans thanks to their special strengths. For instance, humanoid robots do not become angry or bored while carrying out some tasks repetitively.

If they can be easily deployed, used, and customised based on the special needs of each student and teaching activities, humanoid robots may not only challenge the students and promote positive behaviour but also follow and monitor their progress (SoftBank Robotics & ERM, 2021). Humanoid robots are suitable for both one-to-one and group work of students and are an attractive and engaging channel for entertaining and educational communication towards students. Furthermore, they can inspire and accompany children for

both physical and intellectual exercises and support the development of their social and emotional skills (SoftBank Robotics & ERM, 2021).

Nowadays, the use of emerging technologies in ASD treatment is focused on developing social and interactional skills, cognitive and emotional skills, expressive and communicational skills, and acquisition of knowledge. With their increasing sophistication, humanoid robots have enormous potential as a novel therapeutic means for various cognitive disorders. They are specifically designed and developed to reproduce human features, behaviours, and emotions but simplify their informational complexity (SoftBank Robotics & ERM, 2021). Therefore, they reduce the cognitive and emotional burden and decrease the possible stress for the person with whom it is interacting. For example, it has been shown that humanoid/social robots with multilingual interaction abilities can be employed in different roles in foreign language teaching (Tuna & Tuna, 2019), as listed in Table 1. Therefore, in addition to computers, smartphones and tablets, interventions based on humanoid robots are offered extensively for children with ASD. Unlike human-assisted intervention and child toys, humanoid/social robots can repeat their tasks endlessly without boredom and eliminate the concerns related to therapy intensification. However, humanoid/social robots are expensive, depending on the features they have. Moreover, they may replace human assistants as they can carry out routine tasks.

Table 1

Modes that humanoid/social robots can be used for foreign language teaching

Mode	Functions
Reading	The robot leads students to repeat aloud vocabulary and sentences, thus helping them improve their speaking skills. In addition, it can take the roles of different characters and do male/female voice transitions in this mode.
Storytelling	The robot plays stories and creates some sound effects to foster student engagement. It can also perform some comic actions for further student engagement.
Question-and-answer	The robot helps students use the foreign language properly to communicate and comment.
Action-command	The robot asks students to perform some selected tasks. In this mode, the students may ask the robot to do the same so that the robot obeys the instructions given by the students.
Cheerleader	The robot helps the teacher lead certain games, either single-player or group games. In some competitive games, it can take the role of a coach or a fair judge.

Note. Adapted from Chang et al., 2010.

It has been shown that children with ASD prefer interactive robots to static toys. Humanoid robots are anthropomorphic machines that offer predictable, identical, and consistent movements and a synthetic voice with limited intonation and no expression of personality (SoftBank Robotics & ERM, 2021). In addition, thanks to their software components, they can simulate basic social and affective abilities. Humanoid robots can attract children's attention, draw their curiosity and stimulate their interests. The characteristics of humanoid robots generally lead to better sensory receptivity and a decrease in anxiety in children with ASD. Humanoid robots are genuine therapeutic mediation tools for children with ASD; therefore, they are being used to support ASD interventions in different centres worldwide.

Learning means taking the risk of making a mistake. It also involves the worry of not being able to overcome or move past the mistake. After making a mistake, many children with ASD may think that they will never be able to perform the task effectively and that there is no point in trying it again. They will possibly have low or no self-esteem and feel useless. Their feeling is aggravated by growing anxiety and by the presence of someone else. Nevertheless, language learning is a process full of with both positive and negative emotions. Because of internal and external factors, foreign language learners experience different emotions and feelings during the learning process. Therefore, it is necessary to pay attention to emotions and feelings that originate during the language-learning process (Méndez López & Peña Aguilar, 2013). When teachers fail to appreciate the importance of the emotions of their students, they neglect a key factor in the learning process (Immordino-Yang & Damasio, 2007). Therefore, language teachers should manage their students' emotions appropriately so that their students are enabled to make their emotions work for them and not against them (Méndez López, 2011). Such a positive and motivating learning environment can be created by establishing strong teacher-student relationships and promoting group cohesion. However, to realise this, language teachers must show a strong interest in the learning processes of their students and must inspire trust and confidence in the students (Méndez López, 2011). By developing strategies to make the existing learning environment a positive, supportive, and motivating one, language teachers can help students feel confident and willing to participate in learning activities (Méndez López & Peña Aguilar, 2013). However, establishing positive and respectful relationships is not easy.

It has been shown that some tools are useful in overcoming emotion-related difficulties. For instance, emotion cards, cards with pictures of faces, either cartoon or real, can be used to teach children with ASD basic emotions. In addition, thanks to the advancements in technology, animations can be used

to teach emotions to children with ASD aged from two to eight years. Another useful approach could be using social stories (Gray, 1994) to explain social situations. For example, a social story in the form of illustrations or comic-strip conversations could be designed to incorporate feelings into the lessons.

Karimi and Chalak (2017) analysed the effects of applying visual prompts and input enhancement on improving the level of flexibility among English as foreign language learners with ASD in Iran. They recruited thirty participants, aged between 10 and 14, and divided them into three groups: a control group, an input enhancement group, and a visual prompts group. The control group received neither input enhancement nor visual prompts. The input enhancement group was provided with enhanced input by bolding target vocabularies. Finally, the visual prompts group was provided with target vocabulary through a set of visual prompts, including drawing illustrations and pictures. The results obtained after the treatment showed that using visual prompts increases the flexibility needed to acquire target words. It has been shown that visual support tools are considered an evidence-based approach (Steinbrenner, 2020).

Children with ASD often speak too quickly, garbling what they are saying, and typically their volume is too loud or soft. Nevertheless, even those with little speech might have a good comprehension of the foreign language and might be able to respond by nodding, by actions in role-play, by drawing, and even by using a handheld translator (Wire, 2005). In addition, a video camera or a voice recording device, even a computer, can allow playback, which illustrates a voice that is not appropriate in speed or volume for children with ASD. If the children are reluctant to be recorded, it is better to record something else by making the recording an integral part of the lessons (Wire, 2005).

Zheng et al. (2014) analysed the effectiveness of autonomous robot-mediated imitation learning for children with ASD using a system that offers autonomous, adaptive, and dynamic interaction with real-time feedback and performance evaluation for learning imitation skills. The results of their study showed that, compared to a human therapist, the robotic system engaged the children with ASD more and produced higher performance.

In childhood, the development of social competence is closely associated with emotion recognition skills, and the lack of emotion recognition skills is a typical sign of ASD. Costa et al. (2017) designed an intervention protocol in which a social robot similar to the one shown in Figure 1 is used to improve emotional ability in children with ASD. The training programme covering emotional concepts and social situations explained emotions in simple terms and using examples; the difficulty was increased progressively throughout the sessions. In addition, the sessions were built around games that fit the developmental

levels and ages of children to make the learning playful and pleasant. With a similar aim, Lecciso et al. (2021) compared the effectiveness of robot-based intervention and hybrid computer-based training with a standardised video of a peer for the development of facial emotion recognition and expression skills in children with ASD. They expected that the emotion recognition and expression skills of the children would improve via the imitation process, because Bruner (1974) stated that imitation is a critical process to learning social skills. At the end of their study, Lecciso et al. (2021) showed that robot-based intervention and hybrid computer-based training with a standardised video of a peer have almost the same success in fostering facial recognition and expression of some basic emotions in children with ASD.

A humanoid/social robot can perform many functions when working with a child. It can attract and stimulate the child's interest more than other children and foster proactive participation because the child recognises it as a playmate to interact with due to its more predictable interaction pattern. As well as a playmate, a humanoid/social robot can act as a treatment mediation under the control of a therapist. During the treatment sessions, it can automatically and continuously collect data for analysis. A humanoid robot is also useful as a learning support tool in areas such as imitation, which can cause-and-effect communication and social learning. The literature shows that when working with children with ASD, humanoid/social robots provide benefits at a behavioural level. Interacting with a robot reduces repetitive and stereotyped behaviours of children with ASD and improves their communication and language development. Importantly, children with ASD have many social behaviours towards robots, with characteristics quite resembling those that typically developing children have towards humans.

Table 2 lists the effects of humanoid robot-delivered therapy on children with ASD. The results are based on the following. First, the IQ levels of the participants were assessed using the Wechsler Nonverbal Scale of Ability (Wechsler & Naglieri, 2006). Next, the emotional abilities of the participants were measured using the parent-report measures, including the Emotion Regulation Checklist (Shields & Cicchetti, 1997), the Emotion Regulation Rating Scale (Gross & John, 2003), the Self-Control Rating Scale (Kendall & Wilcox, 1979), and the Alexithymia Questionnaire for Children (Bagby et al., 1994), as well as through a direct measure of children's use of emotion regulation strategies using the Reactive and Regulation Situation Tasks. Following that, the mental health of the participants was measured through the parent-report measures, including the Children Behaviour Checklist (Achenbach & Rescorla, 2001), the Strengths and Difficulties Questionnaire (Goodman, 1997), and SRS-2.

Figure 1

Humanoid Robot – NAO (Courtesy of SoftBank Robotics)

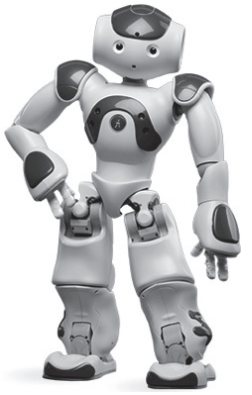

Table 2

The effects of humanoid robot-delivered therapy on children with ASD

Effects on	Results	Limitations/Drawbacks
Emotional Abilities	Higher emotional ability appropriateness	No significant changes in the parent-reported measures except for a little improvement in emotion control ability
Mental Health	Significantly fewer internalising problems such as depression and anxiety	Not a major difference in externalising problems such as impulsivity
ASD-Related Symptomatology	Significantly reduced ASD-related symptomatology in all scales, better social communication and less social interaction problems	None

Note. Adapted from Costa et al., 2019.

Some robots, particularly humanoid/social ones, can be programmed to teach a foreign language and have the features and abilities to do it successfully (Meghdari et al., 2013). In addition to playing games with students and engaging them in conversation, such robots can respond to the students' commands in the foreign language (Toh et al., 2016). Considering that the human teacher has the overall control of the conversation in student-teacher interaction, and the student responds with the help of a robot, the student can be the initiator of actions and have a better and more balanced dialogue (Newton & Newton, 2019). It is known that some students suffer from anxiety and embarrassment, which makes the development of proficiency in speaking a foreign language quite challenging (Newton & Newton, 2019; Newton, 2014). In contrast, compared to

anxiously interacting with another student or a human teacher, speaking with a robot can be less emotive for those students and leads to more positive attitudes to learning and better conversational proficiency as well as less anxiety (Alemi et al., 2014; Chen & Chang, 2008). As a humanoid/social robot can be programmed to be minimally expressive and interact indirectly, it can be used by children with ASD as a learning companion. By adjusting the robot's behaviour slowly to increase the robot's expression and interaction progressively, the oversensitivity of such children to human interaction may be gradually reduced. In this manner, these children become accustomed to human-like behaviours and develop socially (Esteban et al., 2017; Robins et al., 2009). This approach is useful if direct human interaction could present problems and if teachers feel it threatens their dignity or authority (Mubin et al., 2013). Another way of using a humanoid/social robot in the classroom is the 'learning by teaching' approach, in which the robot takes the role of the student, and the student takes the role of the teacher. Tanaka and Matsuzoe (2012) tested this approach with young children learning English and found that it had some potential. This approach can be engaging due to the novelty of learning with something new, but it may be short-term if what is learned is, in itself, not engaging (Hung et al., 2012; Newton & Newton, 2019).

NAO, shown in Figure 1, is one of the humanoid/social robots available on the market. It is fully programmable with a sophisticated Software Development Kit (SDK). It allows integration and implementation of cloud services and Application Programming Interfaces (APIs). By default, NAO supports two languages, but it can speak up to 21 languages and provide translation via cloud services. NAO can customise interactions via its sensors; therefore, it can identify the individual it is interacting with and then, based on this profile, it can adapt its behaviour appropriately (SoftBank Robotics & ERM, 2021). Furthermore, it can connect to the internet and communicate on-the-fly, searching the latest teaching materials and improving its behaviour to fit the target audience and local conditions. NAO and similar robots have an important role in language learning because it has been demonstrated that they can be used to support language development, promote writing skills, teach sign language, enhance reasoning, promote problem-solving skills, and foster self-regulated learning skills by using prompts (Newton & Newton, 2019). In addition, they can answer questions in small group work activities, allowing the teacher to allocate more time to other individuals or groups (Pandey & Gelin, 2017). However, some of the learning effects, as well as motivational effects provided by a robot, may be because of the novelty of using it in the classroom. With familiarity, such learning and motivational effects may decline (Baxter et al., 2015). In

addition, comparable learning effects could be achieved in vocabulary development by using tablets and computers (Vogt et al., 2019). Furthermore, as Van den Berghe et al. (2019) stated, the social behaviour of some humanoid/social robots may lead to a distraction, which results in significantly reduced learning. Nonetheless, it has been shown that teachers have some potential to teach successfully using them.

As mentioned above, there are different behavioural and psychodynamic intervention approaches for children with ASD. However, there is no universal model because the population of children with ASD is very heterogeneous. Although there are many challenges in teaching children with ASD, there are opportunities in this regard. For instance, the lack of flexibility, a distinct characteristic of children with ASD, is one such opportunity. It is typically complemented by a liking for routine, rote learning, and high levels of repetition. Children with ASD possibly put forth their very best effort in order to be successful in learning numbers, vocabulary, set phrases and grammar. By doing so, they acquire a solid grounding that aids them in dealing with the more challenging and demanding social interaction side of learning a foreign language (Wire, 2005).

Future Research Directions

Emotions lie at the centre of language learning and teaching, but they have mostly been omitted in applied linguistic research (Dewaele et al., 2019). However, in recent years, positive psychology interventions have been conducted in universities and schools to enhance learners' linguistic progress. Méndez López and Peña Aguilar (2013) reported that teachers have a considerable impact on the motivation of students and the learning environment and concluded that foreign language teachers should revise their teaching practices to handle the emotional experiences of their students in classroom settings. Emotions strongly impact the motivation of foreign language learners, not merely in classroom instruction (Garret & Young, 2009) but also in various individualised settings (Bown & White, 2010). Reflection on former teaching experiences has been shown to be quite useful in deciding areas that language teachers should consider (Méndez López & Peña Aguilar, 2013). As well as these, foreign language teachers should know the features of ASD.

Lecciso et al. (2021) proved the effectiveness of training using a technological device as a mediator of emotion recognition and expression. The results obtained in their study confirmed the benefit of the technological devices and showed that the use of a humanoid robot and a hybrid device performed almost

the same. Therefore, developing a research plan based on a repeated measures design that involves three phases and then implementing it could be a possible future work of this study. The first phase of that work is an intensive robot-based training. The second is the first generalisation with hybrid computer-based training, and the last is the full generalisation of gained skills in naturalistic settings towards peers and adults (Lecciso et al., 2021).

In addition to motivating students for both physical and mental fitness activities, by using their entertaining interactions. humanoid robots can efficiently present educational information and provide guidelines. Robots designed for children are perceived as friendly; therefore, they are easily accepted by students and students feel themselves more confident and relaxed to answer openly to questions. Thanks to the advantage of embedded computing services and cloud-based ones in real time analysis, with their continuously evolving behaviours, state-of-the-art humanoid robots can interact with students effectively. They can generate insights by collecting data from the sensors and allow their users to carry out survey research to understand the students' behaviours and this way provide regular and detailed feedback to the teachers on the advancement of the students.

Although humanoid robots offer some benefits, teachers need training for core features of ASD and working with the robots and comprehending how artificial intelligence/human interface can be achieved in the classroom. In this training, teachers should be informed of the positive and negative aspects of this approach. In addition, teachers should be informed of how children's relationships with humanoid robots change gradually and with use if robots act as in some specific roles such as teachers (Newton & Newton, 2019; Spirina et al., 2015). If humanoid robots are used in classroom settings for a long time, teachers will possibly obtain clues on evolving humanoid robot-student relationships and the development of students' personal identities (Newton & Newton, 2019).

The advances in artificial intelligence and developments in robotic technologies are quite encouraging for stimulating interactions with children with ASD and making more reliable assessments. Nevertheless, robotic technologies still have various limitations. Most pre-programmed robots have fixed behaviours and cannot be tailored to the individual needs of each child (SoftBank Robotics & ERM, 2021). Therefore, they are not able to autonomously carry out adaptable closed-loop interactions and cannot continuously monitor the children's progress. Consequently, it is necessary to have adaptive, semi-autonomous robots to recognise the children's behavioural cues and then respond accordingly. However, such systems, especially complex ones, need high-performance hardware to process real-time data and update interactions (SoftBank

Robotics & ERM, 2021). Therefore, low-cost and reliable fully autonomous and complex robots designed for intervention protocols are highly needed.

While new technologies are important to support learners' engagement and assist students' research on identifying when not to use a specific technology is required. In addition, there is a need to teach both children and their families (and even their teachers) to use such technologies with discretion and discernment (Newton & Newton, 2019). Moreover, the increasing capabilities of artificial intelligence has led to questions about different matters of ethics that cannot be overlooked. Therefore, they must be carefully handled, properly addressed, and continuously monitored. While some technological limitations or constraints in the ability of artificial intelligence to recognise speech and reply to arising questions remain, these limitations will possibly considerably lessen in the near future (Crompton et al., 2018; Newton & Newton, 2019). However, artificial intelligence is quite different from human intelligence in many aspects, and even sophisticated humanoid robots do not think like people. In this regard, there is a need for extensive collaboration between robot manufacturers, sociologists, ethicists, teachers, and programmers to ensure that rights are observed sufficiently, and ideological and cultural matters are taken into consideration effectively (Newton & Newton, 2019).

Conclusion

Researchers have identified the role and effects of emotional experiences in foreign language learning and have proved that such experiences can impact students' motivation and cause different reactions for each student. Like typically developing children, children with ASD experience emotions and want to communicate them to those around them. Nevertheless, they have impairments in social cognition and often encounter difficulties in expressing themselves, including unusual social communication, impairment in social interaction skills, and lack of flexibility. In addition, they have difficulty in communicating by imitating the emotional expressions of others. Normally, if students perceive that a given task is challenging but feel relief, pride or joy while doing it, they attempt to adjust their perceptions and also become willing to engage in future activities. However, the emotional codes of individuals with ASD are quite different from others.

The literature shows that emotions contribute to enhancing and diminishing motivation for both children with ASD and typically developing children. Although the emotional codes of children with ASD are different, humanoid robots can help children with ASD to improve their skills in recognising other

people's emotions and responding to them. Most sophisticated humanoid robots have multilingual interaction skills, and they can guide foreign language learners by using both their native language and foreign language. This could help to eliminate emotion-related challenges that children with ASD encounter in foreign language learning.

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Identifying Reading Fluency in Pupils with and without Dyslexia Using a Machine Learning Model on Texts Assessed with a Readability Application

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Measurement of readability is an important tool for assessing reading disorders such as dyslexia. Among the screening procedures for dyslexia is the reading fluency test, which is defined as the ability to read with speed, accuracy and proper expression. The reading fluency test often consists of a sequence of unrelated written texts ranging from simple short sentences to more difficult and longer paragraphs. In psychological testing instruments, subjective text assessment is often replaced by objective readability formulas, e.g., the Automated Readability Index. Readability formulas extract multiple features from a given text and output a score indicating the difficulty of the text. The aim of the present study is to build a machine learning model that discriminates between pupils identified with dyslexia and a control group without dyslexia based on fluency in oral reading of texts assessed with a readability application developed within the project For the Quality of Slovenian Textbooks. We focus on differentiation between both groups of pupils by analysing data obtained from transcriptions of audio recordings of oral reading. The empirical study was conducted with 27 pupils aged 8 and 9 with officially diagnosed dyslexia and a control group without identified dyslexia.

Keywords: dyslexia, readability application, reading fluency, machine learning

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Prepoznavanje tekočnosti branja pri učencih z disleksijo in brez nje z uporabo modela strojnega učenja na besedilih, ocenjenih z aplikacijo za berljivost

Jure Žabkar, Tajda Urankar, Karmen Javornik in Milena Košak Babuder

Merjenje berljivosti je pomembno orodje za ocenjevanje motenj branja, kot je disleksija. Med presejalnimi postopki za disleksijo je tudi preizkus tekočnosti branja. Tekočnost branja je opredeljena kot sposobnost hitrega in natančnega branja ter pravilnega izražanja. Preizkus tekočnosti branja je pogosto sestavljen iz zaporedja nepovezanih zapisanih besedil, od preprostih kratkih povedi do zahtevnejših in daljših odstavkov. V psiholoških testih subjektivno ocenjevanje besedil pogosto nadomeščajo objektivne formule berljivosti, npr. avtomatski indeks berljivosti (Automated Readability Index). Formule za berljivost iz danega besedila izluščijo več značilnosti in izpišejo oceno, ki označuje težavnost besedila. Cilj te raziskave je zgraditi model strojnega učenja, ki bo na podlagi tekočnosti ustnega/glasnega branja besedil, ocenjenih z aplikacijo za ocenjevanje berljivosti, razvite v okviru projekta Za kakovost slovenskih učbenikov (KaUč), razlikoval med učenci, pri katerih je bila ugotovljena disleksija, in kontrolno skupino učencev brez disleksije. Pri tem se osredinjamo na razlikovanje med obema skupinama učencev z analizo podatkov, pridobljenih s transkripcijami zvočnih posnetkov ustnega/glasnega branja. V empirični raziskavi je sodelovalo 27 učencev, starih 8 in 9 let, s potrjeno disleksijo in kontrolna skupina brez ugotovljene disleksije.

Ključne besede: disleksija, aplikacija za berljivost, tekočnost branja, strojno učenje

Introduction

Reading and writing are basic skills that are taken for granted in today's society. They are key elements of literacy, enabling individuals to develop the skills of reflection, critique and empathy, leading to a sense of self-efficacy, identity and full participation in society. Among learning difficulties, it is reading difficulties that have a significant impact on an individual's educational success throughout life. Despite an education system that focuses on literacy development, there are still many pupils who leave primary school without adequately developed literacy skills and who are unable to overcome this deficit even in adulthood (Carpentieri, 2012). Learning to read is one of the most important outcomes of early education, and developing reading and writing skills as two key communicative skills are among the basic goals of teaching Slovenian in the first educational period in primary school (Poznanovič et al., 2018). There are increasing numbers of pupils in schools who have difficulties in learning to read and write due to dyslexia (Snowling et al., 2020). Moreover, difficulties in reading also lead to difficulties in other areas of learning, including writing, spelling, reading fluency and comprehension (Moats & Dakin, 2008; Shaywitz, 2003).

The best-known and most widely researched specific learning difficulty is dyslexia, which is a neurophysiologically conditioned reading disorder originating from a developmental or central nervous peculiarity (Magajna et al., 2015; Raduly Zorgo et al., 2010). It includes a group of diverse but interrelated factors that are part of the individual and affect him/her and his/her functioning throughout life (Magajna et al., 2015; Raduly Zorgo et al., 2010). Dyslexia is characterised by difficulties in accurate and/or fluent word recognition, poor spelling and poor decoding skills, all of which affect reading acquisition, reading comprehension and writing (IDA, 2002). The difficulties are not limited to reading and spelling; there are also difficulties with sustaining attention and automating new knowledge, as well as with gross and fine motor skills (Nicolson & Fawcett, 1990, 2007; Rose, 2009). In addition to neurological differences, dyslexia is also associated with cognitive difficulties that can affect organisational skills, numeracy and other cognitive and emotional abilities (Rose, 2009). People with dyslexia can be extremely talented and original when it comes to solving different types of problems and often have good visual skills (Nijakowska, 2016). Approximately seven percent of children and adolescents in the population have dyslexia (Hulme & Snowling, 2016). It is more common in males and often co-occurs with other developmental disorders, such as specific language disorder, attention-deficit/hyperactivity disorder (ADHD) or developmental coordination disorder (dyspraxia) (Hulme & Snowling, 2016).

Dyslexia affects the ability to decode or transfer phonological skills to spelling. Over the last decade, decoding skills and phonological awareness in pupils with reading difficulties have been identified as serious inhibitors of successful reading (Klingner et al., 2007), as they affect the fluency of reading. Decoding depends primarily on letter knowledge and phonological skills, which include phonological awareness (Hulme & Snowling, 2009). Phonological awareness is the ability to recognise and manipulate phonemes and is a strong predictor of the development of decoding skills or the successful onset of learning to read (Hulme & Snowling, 2009). Inefficiency in performing these skills can lead to reading being a slow and difficult process (Anderson, 1999; Erbeli & Pizorn, 2012; Segalowitz et al., 1991) and may even lead to a decrease in motivation for reading (Erbeli & Pizorn, 2012).

For many years, experts in the field of reading disabilities have agreed that phonological deficits are a primary cause of dyslexia, as they directly affect learning to read (Snowling & Hulme, 2012). Such deficits are therefore an early and strong predictor of dyslexia (Mather & Wendling 2012). For pupils with dyslexia, difficulties in learning to read accurately and at an adequate speed (reading fluency) are usually at the forefront (Snowling & Hulme, 2012). Even when a pupil achieves adequate reading accuracy, it is significantly more difficult to achieve adequate reading speed with treatment (Fletcher et al., 2007). Young pupils with dyslexia are characterised by (Rief & Stern, 2010):

- slowness in learning the connection between letters and phonemes,
- letter reversals and inversions,
- lack of a systematic approach to sounding out words,
- difficulty in reading words,
- frustration with reading tasks.

Such pupils have good comprehension of material read to them as opposed to material they attempt to read themselves (Rief & Stern, 2010).

Screening and assessment of dyslexia in Slovenia

In Slovenia, pupils with mild to moderate dyslexia receive adapted methods and forms of teaching and testing under the Primary Education Act (Primary Education Act ZOsn-UPB3, 2006), while pupils with severe dyslexia receive more intensive accommodations and additional professional support under the Act on the Guidance of Children with Special Needs (ZUOPP-1, 2011). The process of identification and diagnostic assessment of dyslexia, which requires a multidisciplinary team of professionals (psychologist, special and rehabilitation teacher, speech therapist), involves several stages, from detection, classification,

support planning and progress monitoring to evaluation (Magajna, 2011). The first stage of identifying pupils with dyslexia (detection) is screening, which aims to identify students in need of diagnostic assessment and inform individuals of the likelihood of dyslexia (Pollak, 2009). Screening tests allow dyslexia to be confirmed in young pupils, thus enabling appropriate treatment to be implemented before they experience a sense of failure (Snowling, 2013). Tests used to detect dyslexia include phonological awareness tests, tests of reading aloud and silently (decoding, spelling, reading fluency – speed and accuracy), reading comprehension, rapid naming, memory, attention, etc.

In Slovenia, there are several tests for dyslexia-like reading and writing difficulties that test different elements of reading and writing (phonological awareness, reading speed and accuracy, reading automation, reading comprehension, dictated writing, written expression): *The Reading and Writing Disability Test* or Šali Test (Šali, 1971) (the test is only partially standardised for the population of children in the second grade); *SNAP – Special Needs Assessment Profile* (SNAP is not a test in the psychometric sense, but an instrument for gathering information about the pupil relevant to identifying potential difficulties in a particular skill) (Weedon & Reid, 2018); *The One-Minute Test of Reading Aloud* (Gradišar & Pečjak, 1991); *The Reading Comprehension Test* (Elley et al., 1995); *The Reading Test* (Pečjak et al., 2012b) (the test is a standardised measurement instrument that assesses general reading ability at the end of the first three years of primary school); *The Reading Ability Assessment Scheme – OSBZ* (Pečjak et al., 2012a) (the test is a standardised measurement instrument and the data collected with the OSBZ provide information about what reading skills the student has already developed); *The Test of Reading Fluency Based on the Curriculum Model for Grades 2, 3 and 4* (Košir, 2011); and *The Phonological Awareness Test* (Magajna, 1994).

Early identification of dyslexia is a key to providing appropriate support and intervention for pupils with dyslexia. Due to the multidimensional nature of the disorder, a variety of tests and test batteries are used to effectively identify dyslexia. Good screening is important in order to distinguish pupils who are at risk of developing reading and writing disorders from those who are not. To identify reading difficulties, pupils are screened for various components of reading, such as phonological awareness, reading fluency (speed and accuracy of decoding), reading automaticity, reading comprehension, etc.

Information and communication technology (ICT) appears to be an increasingly important tool for dyslexia screening and the necessary interventions to address the specific learning difficulties and needs of individual learners (Drigas & Politi-Georgousi, 2019). ICT is an important factor in improving traditional

methods of identifying dyslexia, as well as in exploring new perspectives on identifying individuals with dyslexia (Perera et al., 2016). Rooms (2000) highlights the potential benefits of using ICT for pupils with dyslexia in primary schools, emphasising the fact that it can be accessible and available without making pupils with dyslexia feel different or excluded. Multisensory approaches (auditory, oral, visual, kinaesthetic) and systems are incorporated to mitigate the difficulties of pupils with dyslexia (Rooms, 2000). Diagnostic assessment using ICT allows psychologists and other professionals to easily and quickly assess cognitive abilities and other important skills (Singleton, 2001). Interactive multimedia, virtual environments, neural networks, software, fuzzy logic, game-based techniques and mobile applications improve the effectiveness of traditional dyslexia screening procedures, with each approach offering sophisticated features that facilitate assessment procedures (Menghini et al., 2011).

Research problem and Research question

Dyslexia often manifests itself in young pupils through slow progress in learning to read and write. The difficulties are frequently reflected in poorer academic achievement and, consequently, lower self-esteem. It is therefore important to identify dyslexia as early as possible and treat it appropriately. This helps to prevent the stigmatisation of children and adolescents with dyslexia, to promote their inclusion in society and to reduce difficulties in adulthood.

The use of computer systems to identify pupils with dyslexia is already relatively well established worldwide. A wide range of software is available to teachers, from screening software to more detailed computer-based assessment batteries. Most computer-based dyslexia detection programs rely on assessments of reading and spelling skills as well as cognitive abilities such as phonological awareness and verbal memory, which support literacy development and are generally good predictors of dyslexia (Singleton et al., 2009). Both traditional tests and applications have their advantages and limitations. The advantage of traditional tests is the presence of an expert who administers the test while observing the pupil, checking the pupil's comprehension, adjusting the instructions so that the pupil understands them, and observing the pupil's attention span and possible fatigue. At the same time, the expert can encourage and support the pupil. The main disadvantages of traditional testing are the exposure of the individual and the time-consuming nature of the test. These factors can be eliminated with the help of an application. Moreover, the application can be used by several pupils at the same time, so that many pupils can be assessed in a short time, enabling at-risk pupils to be differentiated from those

who are not at risk. The application also has advantages from a motivational point of view, as it often resembles a computer game rather than an assessment.

Our overall goal was to train a machine learning model to differentiate between pupils with identified dyslexia and a control group of pupils without dyslexia. In this context, our research problem was to identify the important parameters of pupils' oral reading fluency and to investigate whether we can use these parameters as features for our model. In order to determine the parameters of oral reading fluency, we first performed manual transcriptions of audio recordings and defined the types of errors that pupils made most frequently in reading. We defined the parameters of reading based on the defined error types for each word in the six texts obtained from the test battery of the Slovenian National External Assessment of Knowledge for third-grade pupils. Based on the values of these parameters for each pupil, we extracted a subset of the most important parameters and used machine learning methods to build models to classify pupils into one of two groups: 'identified dyslexia' or 'control'.

Method

Participants

The participants of the study were 12 pupils with dyslexia officially diagnosed by experts from the Counselling Centre for Children, Adolescents and Parents Ljubljana and 15 pupils without identified dyslexia. The pupils were from six different primary schools in Ljubljana, from the third (n = 13) and fourth (n = 14) grades. The age of the participants ranged from 8 to 9 years. Five of the pupils in the third grade and seven in the fourth grade were officially diagnosed with dyslexia. We only included pupils who had a signed parental consent form confirming participation and storage of the collected data for further analysis. Participation was anonymous. We did not record the pupils' first and last names; we only recorded their age and whether they had already been diagnosed with dyslexia.

Instruments

As a research instrument, we used the desktop application PKP Dyslexia[4] to test skills that are typically less well developed in people with dyslexia. The application contains six tests (sequencing concept test, reading comprehension test, phonological awareness test, working memory test, reading aloud

4 The study used a desktop version of the PKP – Dyslexia Web Application, previously developed at the Faculty of Computer Science and Informatics as part of the Creative Pathways project. The desktop application was completed as part of a thesis by Kunej (2021).

test and silent reading with an eye tracker), each of which comprises a series of tasks. The tests require the use of cognitive and language skills, which are key to successful reading and writing. In designing the tests, we followed the protocols for developing psychological tests according to international guidelines (e.g., various International Testing Commission guidelines) and the American Standards for Educational and Psychological Instruments (Standards for Educational and Psychological Testing, 2014), as well as guidelines for developers of computer-based psychological tests. Experts from various fields participated in the development. In this study, we present only the results of the Reading Aloud test used to test reading fluency (speed and accuracy/correctness/error).

The reading aloud test included six texts from the test battery of the Slovenian National External Assessment of Knowledge (CEAK) in the mother tongue (Slovenian) for third-grade pupils. This is the first national assessment of knowledge in mother tongue (Slovenian) proficiency in which pupils take part. For the purposes of the present study, the texts were selected from previous years' test batteries. The six texts were all informative and were about topics of general interest to the children (e.g., wild animals and a fairy tale). The level of difficulty of the texts was assessed using an application developed within the project For the Quality of Slovenian Textbooks (KaUč). According to the Automated Readability Index and the Coleman-Liau Index, which take word and sentence length as a criterion, each of the six reading tasks had acceptable reliability indices in the respective years in which they were administered to a national sample of students. The texts have a very similar difficulty level, with the exception of the text entitled The Mountain Gorilla, which is slightly more difficult but still much easier than average (see Table 1).

The texts used in the task vary in length. The shortest text contains 28 words, three of the texts contain about 40 words (36, 40 and 41 words, respectively), one is slightly longer at 57 words, while the longest text has 123 words.

Table 1
Characteristics of the input texts

Text	Title	Automated Readability Index[6]	Coleman-Liau Index[7]	Length in words	Rare words[8]
1	Gorska gorila (*Eng. Mountain Gorilla*)	18.2	23,6	28	6
2	Leopard (*Eng. Leopard*)	2.8	5,4	57	14
3	Šimpanz (*Eng. Chimpanzee*)	2.9	6.5	36	11
4	Koala (*Eng. Koala*)	3.4	7.1	41	10
5	Lev (*Eng. Lion*)	2.8	5.1	40	9
6	Dobra vila v dolini Soče (*Eng. A Good Fairy in the Soča Valley*)	2.0	3.6	123	14

Note. Texts 1 to 5: adapted from National Geographic Junior, issue 124, December 2015. Text 6: Slovenian folk tales about fairies and elves. Published in Zmajček, Vol. 20, No. 1, September 2013.

The difficulty level of the texts used to test reading fluency (speed and accuracy) is important, as they must be simple enough to be appropriate for pupils in the third and fourth grades. At the same time, the texts should contain enough specific features that might cause reading difficulties for pupils with dyslexia.

The texts used in the test battery of CEAK also contain rare words (Table 1) that are considered more difficult to process for pupils with dyslexia (Rüsseler et al., 2003; Suárez-Coalla & Cuetos, 2015). Pupils with dyslexia read the words they encounter frequently in texts faster and more accurately, so they become part of their reading vocabulary. Building a reading vocabulary is challenging for pupils with dyslexia, as they have difficulty learning and recognising new words in print. In pupils with dyslexia, there is often a discrepancy between their spoken vocabulary, which can be very large, and their reading vocabulary (Bailey, 2020).

Below we present the six texts included in our study and a graphical representation of their readability. The graphs included show (1) how the entered text compares with texts from the ccKres[8] corpus in terms of readability, and

5 The Automated Readability Index is a simple measure of readability based on two components: word length and sentence length. The higher the number of words with many letters and sentences with many words, the higher the Automatic Readability Index. Higher values indicate lower readability (Škvorc et al., n. d.).

6 The Coleman-Liau Index is similar to the Automated Readability Index and is based on the length of words and sentences. The more words with many letters and sentences with many words a text contains, the higher the Coleman-Liau Index. Higher values indicate lower readability (Škvorc et al., n. d.).

7 Rare words are words not included in the list of common words (Škvorc et al., n. d.).

8 ccKres is a collection of Slovenian texts from fiction, non-fiction, newspapers, magazines and web texts, containing a total of 10 million words (Škvorc et al., n. d.).

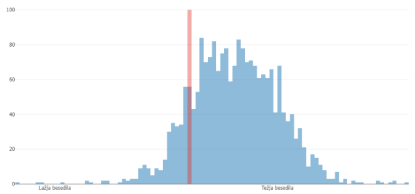
(2) a histogram of the readability measures across texts in the ccKres corpus, where the red line shows where the evaluated text is located compared to all of the texts in the corpus (Škvorc et al., n. d.).

Graphical representation of readability for Text 6 (Dobra vila v dolini Soče; Eng. A Good Fairy in the Soča Valley)

Text 1: Gorska gorila (*Eng. Mountain Gorilla*)

Mladički gorske gorile se radi igrajo in družijo s prijatelji. Podnevi se zabavajo: plezajo po drevju, se lovijo in gugajo na vejah. Gorske gorile so ogrožena živalska vrsta.

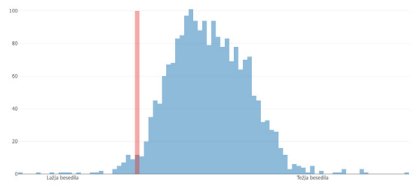
Figure 1
Graphical representation of readability for Text 1 (Gorska gorila; Eng. Mountain Gorilla)



Text 2: Leopard (*Eng. Leopard*)

Samica leoparda običajno skoti dva ali tri mladiče. Z njimi ostane približno dve leti, dokler se ne naučijo sami loviti. Ko mladič leoparda odraste, se zadržuje na drevesih. Večji del dneva počiva v krošnji in le občasno lovi. Ko ujame plen, ga zvleče na drevo, da ga v miru poje. Leopard je prebivalec pragozdov Afrike in Azije.

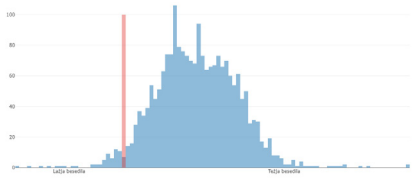
Figure 2
Graphical representation of readability for Text 2 (Leopard; Eng. Leopard)



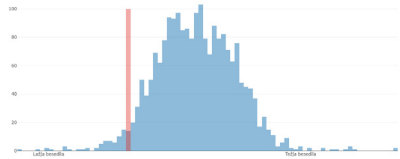
Text 3: Šimpanz (*Eng. Chimpanzee*)

Mali šimpanzi so zelo zabavni in radi brijejo norce. Šimpanzi so namreč izredno pametni. Živijo v afriških pragozdovih. So odlični plezalci. Jedo žuželke, ki živijo v deblih dreves. Kadar ni vode in so žejni, žvečijo liste.

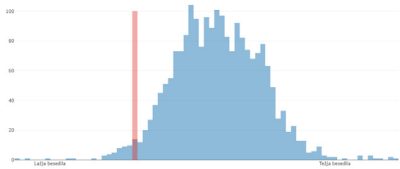
Figure 3
Graphical representation of readability for Text 3 (Šimpanz; Eng. Chimpanzee)



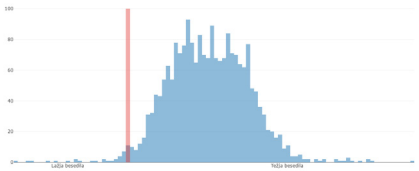
Text 4: Koala (*Eng. Koala*)

Ko koale pridejo na svet, so velike kot bonbon. Približno pol leta preživijo kar v materini vreči. Zato malim avstralskim koalam ni treba hoditi v vrtec. Koal ne smemo zamenjati z medvedi, čeprav so jim podobne. So vrečarji, tako kot kenguruji.	**Figure 4** *Graphical representation of readability for Text 4 (Koala; Eng. Koala)* 

Text 5: Lev (*Eng. Lion*)

Mladi levi bi radi čim prej odrasli. Takrat pri večerji ne bodo več čakali, da se najprej najedo starejši samci in samice iz krdela. Pri levih po navadi lovijo odrasle samice. Naloga samcev pa je, da stražijo in branijo ozemlje.	**Figure 5** *Graphical representation of readability for Text 5 (Lev; Eng. Lion)* 

Text 6: Dobra vila v dolini Soče (*Eng. A Good Fairy in the Soča Valley*)

Na bregu Soče je nekdaj stala koča, v kateri je živel reven kmet s sinom, ki je pasel ovce. Nekega dne je fantič zašel v gozd in ni našel poti domov. Prišel je do studenca in v travi ob vodi zagledal ribico, ki se je nemočno premetavala. Hitro jo je položil v vodo, a v tistem trenutku se je spremenila v prelepo vilo. »Hvala ti. Rešil si mi življenje. Kako naj ti to poplačam?« je spregovorila vila. »Prosim, pokaži mi pot domov,« jo je zaprosil pastir. Vila je vodila dečka skozi gozd in ga pripeljala do njegovega doma. Pastir bi se ji rad zahvalil, a dobra vila je nenadoma izginila, njegova pastirska palica pa se je v tistem trenutku spremenila v zlato palico.	**Figure 6** *Graphical representation of readability for Text 6 (Dobra vila v dolini Soče (Eng. A Good Fairy in the Soča Valley))* 

The position of the red lines in the histograms above for texts 1 through 6 indicates where the scored text is placed compared to all of the texts in the corpus, thus showing that all six texts are relatively easy texts.

The user interface is designed to attract pupils while ensuring that a single display does not contain unnecessary and distracting stimuli or too many elements at once. Information is displayed sequentially and in small sections.

The colour contrast between the text and the background is specifically designed to suit the visual processing characteristics of pupils with dyslexia. The text is left-aligned to make it easier and faster for pupils to find the beginning of the text on a new line. When the text is displayed, the program begins to time and record the voice. The time is stopped when the pupil reads the text and clicks the 'NEXT TEXT' button. The purpose of this task was to obtain audio recordings of the pupils reading aloud.

Research Design

In our experiments, we used the desktop application *PKP – Disleksija*. In the Reading Aloud Test, the pupils were asked to read six texts each, which were displayed on a 15-inch laptop screen. The test contains written and auditory instructions that are carefully prepared in such a way that it is assumed that pupils will understand them. However, it is also accepted that parents will help pupils to understand the instructions. The instructions are followed by a brief demonstration that gives the pupil a clear visual idea of how to approach the test. After the initial instructions, the pupil is given a series of exercises to check that he or she has understood the instructions (verifying that the pupil has understood how to complete the task). These preliminary exercises are not scored and the pupil has the opportunity to review the instructions again while performing them. This is followed by six reading aloud tasks that are recorded and then scored. The Zoom H4n Pro handheld digital recorder was used to collect the audio data. The read-aloud test data was collected between 9 June and 18 June 2021.

Results

Our experimental work focused on using machine learning methods for the classification of pupils into one of two groups: those with 'identified dyslexia' and a control group 'without identified dyslexia'. Due to the small sample of pupils, we were limited to using machine learning methods that require a great amount of pre-processing; we could not use raw audio recordings for input, but instead had to extract the features from them. We struggled to automate the feature extraction process, but managed to construct the features manually. This limits the applicability of our models to the six texts that were used in this study.

Audio transcription and feature construction

The audio recordings were manually transcribed using Audacity software (Audacity® software is copyright © 1999-2021). Four attributes were defined for each transcribed word: **start**, **word**, **end**, **error_type**. Each line of the

transcription file refers to a single word in the text. The **start** feature indicates the time when the reader started reading the **word** aloud, and **end** indicates the end time of reading the **word**. Both values are written in the format *{MM:SS. mmm}*, where MM denotes minutes, SS seconds and mmm milliseconds. The **word** feature indicates the word that was read: all of the vowels that the reader read aloud when reading each particular word we written down. The **error_type** denotes the type of error that occurred while reading the word. From the audio transcriptions of all six texts, seven most common error_types were identified, which were labelled with numbers from 1 to 7:

1. Misread word (e.g., **balon** instead of **bonbon**),
2. Word read n-times (e.g., **ko ko**, marked as 2:2),
3. Word sequence read n-times (e.g., **ki živijo v ki živijo v**, marked as 3:2 at each word of the sequence),
4. Character elongating,
5. Reading stutter (e.g., **zazabavni** instead of **zabavni**),
6. Incorrectly stressing the word,
7. Omitting the word.

For each pupil, a separate transcription file was created for each text, giving a total of 27 * 6 = 162 transcription files. In order to use this data in our Orange (Demsar et al., 2013) machine learning setting, all transcribed features for each pupil were combined into a single learning example, resulting in 27 learning examples and 618 features (the features from transcriptions, i.e., error types, silence before and reading time). The dataset is well balanced: 12 examples belong to a positive target class (identified dyslexia) and 15 to a negative class (without identified dyslexia).

The attributes were standardised so that they all have $\mu = 0$ and $\sigma^2 = 1$. Despite the small dataset and the large number of features, the goal was to learn a model that predicts the target outcome (identified dyslexia). The leave-one-out method was used in all of our experiments in order to evaluate the models.

The goal was to see how well an ensemble method performed on our data. Ensemble methods are machine learning techniques that combine a set of base models, such as decision trees. Each base model contributes to the ensemble model with its own prediction; ultimately, the ensemble model predicts the outcome based on the votes of all of the base models. We tried extreme gradient boosting of random forest (xgboost), which consists of 100 trees and limits the depth of each tree to 3, but allows all of the attributes in each tree, level and split. The confusion matrix in Table 2 shows the results of the leave-one-out test for the xgboost model, which indicates three misclassified pupils from our dataset.

Table 2

Results of the leave-one-out test for the xgboost model

		Predicted		Σ
		Pupils without identified dyslexia	Pupils with identified dyslexia	
Actual	Pupils without identified dyslexia	13	2	**15**
	Pupils with identified dyslexia	1	11	**12**
	Σ	**14**	**13**	**27**

Ensemble models usually provide good predictions but are difficult or impossible for humans to understand. In order to gain insights, we focused on simple methods that can provide models humans can understand: a naive Bayesian classifier, a decision tree and Freeviz (Demsar et al., 2013). Before learning, feature subset selection was performed using ReliefF (Kononenko, 1994), which selected the following top ten features from all six texts:

- igrajo_silence_before
- gorile_silence_before
- se_reading_time.1.2
- in_silence_before.1.2.1
- do_reading_time
- je_reading_time.4
- se_reading_time
- nenadoma_silence_before
- običajno_reading_time
- običajno_silence_before

These features were used for learning a naive Bayesian classifier, a classification tree and the Freeviz visualisation. The feature names are combinations of the word that was read and the type of feature it describes. Two types of features were chosen:

- silence_before describes how much time was needed before the word was read aloud (example: igrajo_silence_before is a feature that describes the silence needed before the word 'igrajo' was read aloud),
- reading_time describes how much time was needed to read the word aloud (example: običajno_reading_time is a feature that describes the time needed to read the word 'običajno' aloud).

The nomogram in Figure 7 serves as a visual representation of the naive Bayesian classifier. The contribution of each feature is measured as a score and

the individual scores are summed and converted into the probability of the target class (pupils with identified dyslexia). The features are ranked by importance: the strongest influence on the target class (pupils with identified dyslexia) are the features običajno_silence_before and nenadoma_silence_before.

The confusion matrix of the naïve Bayesian classifier in Table 3 shows that only one child was misclassified in the leave-one-out test.

Figure 7

The nomogram of the Naive Bayesian classifier

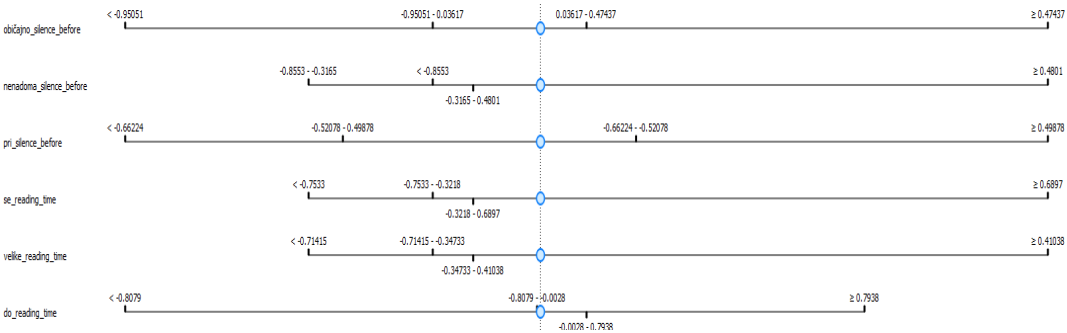


Table 3

Results of the leave-one-out test for the Naive Bayesian model

		Predicted		Σ
		Pupils without identified dyslexia	Pupils with identified dyslexia	
Actual	Pupils without identified dyslexia	14	1	**15**
	Pupils with identified dyslexia	0	12	**12**
	Σ	**14**	**13**	**27**

The classification tree learned with the above features is shown in Figure 8. Again, the same two features turn out to be the most important: the words 'običajno' and 'nenadoma' seem to be the most difficult in the six texts. The values of the splits should be interpreted in the context of feature standardisation ($\mu = 0$ and $\sigma^2 = 1$):

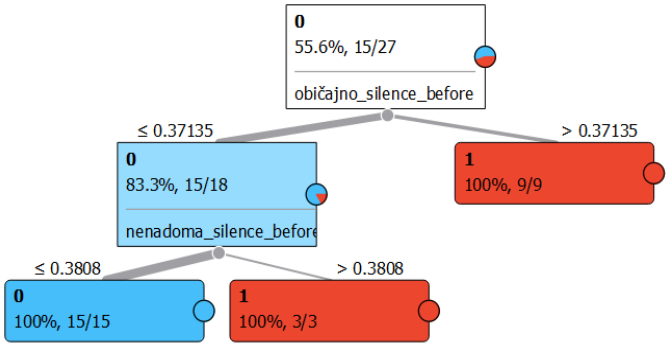
- običajno_silence_before takes the values in the interval [-0.99, 2.35]; the divided value of 0.371 is slightly above the mean and indicates that the pupils with a longer than average pause before this word are classified as pupils with dyslexia. The rest of the pupils – those who make shorter

pauses before reading the word 'običajno' – are further checked in the classification tree for the time of silence before the word 'nenadoma'.

- nenadoma_silence_before takes the values in the interval [-0.88, 2.5]. The divided value of 0.38 is again about one-third of the length of the interval. Those who took less time before reading the word 'nenadoma' are classified as pupils without dyslexia, while the rest are predicted as pupils with dyslexia.

Figure 8

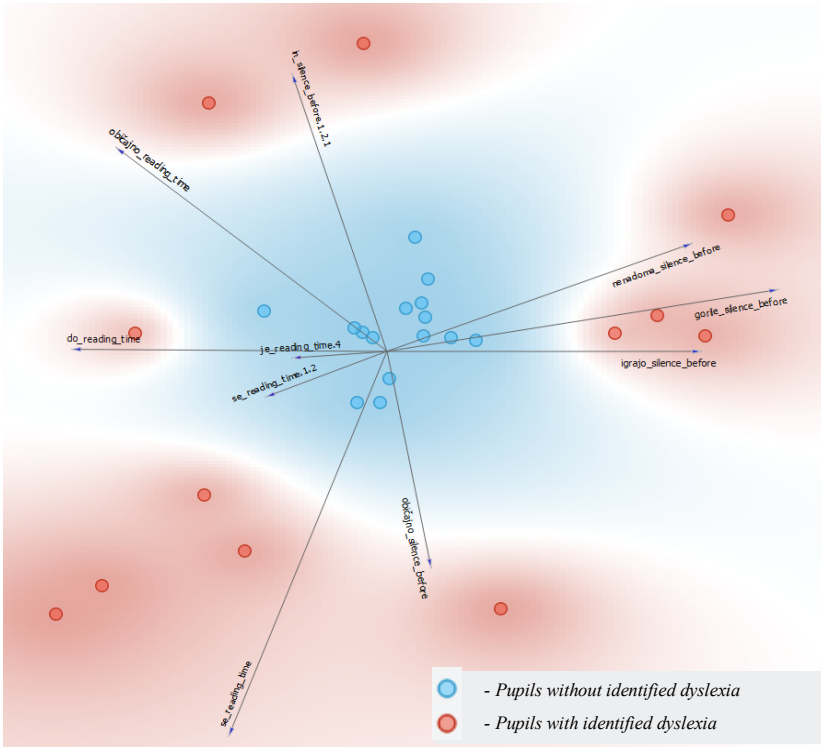
While the numbers in the splits with their absolute values do not explain much (due to standardisation), both splits show that long silences before the two difficult words 'običajno' and 'nenadoma' predict a positive target class (identified dyslexia). Note that the same two attributes have the largest positive influence on the target class in the above NB nomogram.



Finally, in Figure 9 we present a FreeViz projection that visually confirms the observations from the nomogram and the decision tree. FreeViz (Demšar, 2007) is a method that optimises a linear projection of data with a discrete class variable (in our case it has two values: 'identified dyslexia' and 'control group') and displays the projected data in a two-dimensional scatter plot. FreeViz can reveal interesting relationships between classes and features; in our domain, the explanation for the FreeViz projection is as follows.

The blue area, concentrated in the middle, represents the pupils from the control group; they have shorter reading times and even pause before the more difficult words. In contrast, the red area, which represents our target class (pupils identified with dyslexia), extends around the blue area and shows higher scores on all observed variables.

Figure 9
FreeViz projection.



Discussion

In order to become a good reader, pupils need to develop two basic skills: decoding and reading comprehension (Nation, 2006). With practice, decoding soon becomes quick, flexible and efficient in pupils who have no difficulty in this area (Nation, 2006). The reading test in the present study included six texts from the Slovenian National External Assessment of Knowledge (CEAK) battery in the mother tongue (Slovenian), all of which deal with topics of general interest to children (e.g., wild animals and fairy tales).

In order to select texts that are easy enough to be suitable for 8- and 9-year-olds, but at the same time contain enough features (e.g., rare words) that might create reading difficulties for pupils with dyslexia, the difficulty of all six texts was assessed using the KaUč readability application, which is used to evaluate Slovenian textbooks. Since the texts belong to the CEAK battery,

the KaUč readability application was found to be an appropriate tool for assessment. We used the Automated Readability Index, which assesses the difficulty of a text based on the length of words and sentences. All six texts were rated as very easy in the ccKres text corpus, which contains Slovenian texts from various sources and has more than 10 million words. Although the texts were simple, they discriminated between the two groups of learners: those with dyslexia and those without.

Machine learning methods have been used to predict pupil reading disabilities. Based on a small but balanced sample, our models clearly distinguished between pupils with reading difficulties, e.g., dyslexia, and a control group of pupils without dyslexia. Although the six selected texts were classified as easy by the KaUč readability application, we were able to determine that they were suitable for detecting a reading difficulty in pupils in the third grade. Other authors have also emphasised the importance of assessing reading fluency as one of the distinguishing characteristics of pupils with dyslexia. In a meta-analysis, Carioti et al. (2021) explained that reading fluency can be meaningfully considered as the most important parameter for diagnosing developmental dyslexia, as deficits in reading speed, lexical recognition and phonological recoding have been identified as universal manifestations of reading deficits, regardless of age and orthographic depth of language. This suggests that the use of time-limited approaches in reading tasks does not provide contradictory or less robust evidence for the presence of developmental dyslexia (Carioti et al., 2021). In particular, in the context of transparent orthographic systems, where there is a high degree of correspondence between graphemes and phonemes, the authors suggest that the main feature of developmental dyslexia is poor reading fluency (Martínez-García et al., 2019).

The models presented in the aforementioned study are highly relevant to the six selected texts from our study, but are not generally applicable. The data set used in our experiments is very small, consisting of only 27 pupils, which is understandable due to the nature of the task. Although the conclusions are promising, a bigger sample size would be needed to determine whether the results are significant and how well they generalise to a larger population. Our methodology shows that different machine learning methods on audio transcripts can clearly distinguish between pupils with reading disabilities, e.g., dyslexia, and a control group without dyslexia, even for short and simple texts. The latter suggests that basic screening tests could be short and effective. Carioti et al. (2021) make a similar point: it is important to be aware that the reading process can be stressful for those with developmental dyslexia. Therefore, it is useful to use time-limited reading tasks and not to overwhelm pupils with long and complex reading tasks

whose reliability and clinical validity may be questionable. In this context, several authors have pointed out that it is not optimal to adopt an assessment of reading skills based solely on accuracy; although accuracy is an important parameter, it is not the only one, especially when assessing cross-linguistic differences in reading skills, when orthographic transparency or deficit compensation (at least for this parameter) can easily lead to inaccurate results in adulthood (Carioti et al., 2021; Sprenger-Charolles et al., 2011).

Assessing pupils' reading fluency is important not only to identify problems, but also to monitor progress in this area. Based on research findings, Kairaluoma et al. (2007) suggest that students with reading difficulties benefit from reading fluency intervention. They add that the intervention should be long term and initially based on emphasising syllables as sublexical reading units and then gradually progressing to larger reading units. It is also worth noting that prior phonological and semantic training facilitates the formation of orthographic representations, as evidenced by a reduction in the length effect (Martínez-García et al., 2019). When comparing 8- to 9-year-old pupils with and without dyslexia before the implementation of a training programme based on letter-sound associations, with a particular focus on increasing reading fluency, González et al. (2015) found that the group of dyslexic pupils showed more severe impairments on measures of word reading speed than on measures of accuracy (González et al., 2015). When evaluating the impact of the training programme comparing 8 to 9-year-old pupils with and without dyslexia, they found that the pupils with dyslexia improved significantly in the main measures of word reading and spelling after the training, progressing at a faster rate than both the group of pupils without dyslexia and the group of pupils with dyslexia in the control group who were waiting for the programme (González et al., 2015).

Conclusion

In our study, we trained different machine learning models to predict pupil reading disabilities. Despite the small sample, all of the models clearly distinguished between pupils with reading disorders and a control group. It was demonstrated that fluency in oral reading can be measured objectively even in short and simple texts. The machine learning methodology used is based on transcription data, which was constructed manually from audio recordings of oral reading. Manual construction of such data is tedious and subjective work, and is therefore impractical for larger datasets of audio recordings. Our future work will focus on automating audio transcriptions and feature construction from automatically obtained transcripts. We will also explore the possibility of

working directly with audio signals and include methods for incorporating the knowledge of domain experts into our learning dataset.

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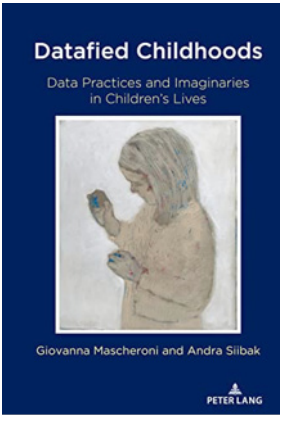
Giovanna Mascheroni and Andra Siibak, *Datafied Childhoods: Data Practices and Imaginaries in Children's Lives*, Peter Lang, 2021; 200 pp.: ISBN: 987-1-4331-8314-0

Reviewed by Katja Koren Ošljak[1]



"Insomuch as positioning digital media as the problem (or the solution) of contemporary family life is flawed, blaming the latest technological objects for corrupting the privacy of the home is equally problematic" (Mascheroni & Siibak, 2021, p. 89). Just as perplexing and problematic is the techno-solutionism that is framing naive visions of contemporary education, while at the same time fuelling fears that digital media and technology will corrupt young people's cognitive skills, reading or critical thinking, all of which are considered necessary for knowledge formation. It would be simple – if it were so simple – to understand and then improve the complex societal situation of an enormous and diverse population of contemporary children.

Fortunately, some studies carefully observe and exhaustively explore young people in today's world, such as the research presented in the book *Datafied Childhoods: Data Practices and Imaginaries in Children's Lives*. Its title intriguingly diversifies common debates on the role of technology in children's lives, promising a wholesome analysis of growing up in a datafied society, also from the child's perspective. Following this title, the book delivers a child-centred approach that takes what the interviewed and observed children have to say very seriously. The researchers reasonably decline media-centric methods, but more importantly, they evade the traps of techno-deterministic framing. This should not surprise readers who are already familiar with the authors of *Datafied Childhoods*. Giovanna Mascheroni and Andra Siibak have extensive bibliographies on children, families and parenting in the age of digital media. At the peak of the datafication of everyday life, their cooperation on this book about the in-depth research of datafied childhoods offers an accurate

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theoretical overview of contemporary childhood media studies, further developed through the authors' original empirical research.

Mascheroni and Siibak employ various empirical approaches derived from digital ethnography, including autoethnography within the researchers' own homes/families and quantitative survey research, and it is an absolute pleasure to read their thorough conceptualisations of the intertwining relationships between children, the domains of their everyday life (family, school, peers) and the ubiquitous presence of data-driven media today. The evenly extensive chapters delve deep into various arenas and experiences of growing up, with a clear focus that might be welcome not only for researchers of digital media, pedagogy, sociology of childhood and children's development, but also by progressive educators and experts following the public debates on children and digital technology.

Datafied Childhoods explores the complex circumstances in which digital media, such as smartphones and other internet-connected devices, social media platforms, algorithms and artificial intelligence (AI), modify the contexts in which contemporary children are growing up while engaging in various everyday practices with their peers, families and educators. While the authors recognise the multiple and complex changes in contemporary childhood, they refrain from the technological determinism and media effects approaches that came to the fore with television audience studies in the twentieth century. Mascheroni and Siibak acknowledge that the experience of being a child, growing up, parenting, family life and education have been in constant flux throughout history. Nevertheless, they stress that today's children are among the first generations whose life will be datafied from birth and even before, i.e., through pregnancy apps.

In order to grasp the complex relationship between the changes in contemporary childhoods and fast-paced alterations in the digital media ecosystem, the authors suggest analysing this relationship from the perspective of broader social, cultural, political, technological and economic transformations. Appropriately, and in line with the prominent contemporary research practice, they offer an analysis from the child-centred perspective, recognising children as agents and active subjects of their social interactions within various social contexts. Moreover, the research applies the Bourdieusian legacy when considering structuring interventions of social institutions, the socioeconomic status of families, and the educational attainment and digital skills of parents while researching the datafication of children's everyday life. Related to this, Mascheroni and Siibak make a crucial accent by characterising *dataism* as a belief or "data religion", through which they criticise ideas about the absolute validity of data,

its processing and the reliability of algorithms when addressing society-related challenges in politics, the economy, etc. (2021, pp. 20–22).

The book opens with a conceptual and theoretical introduction to the datafication of the everyday life of children that pursues the question one could summarise as: What does it mean to grow up in a "quantified habitus (Mascheroni, 2018)" (Mascheroni & Siibak, 2021, p. 14)? The authors define datafication as a "massive and systematic monitoring, recording, and transformation of our everyday practices online and offline – including aspects of the world not previously datafied and measured, such as friendships and emotions – 'into online quantified data, thus allowing for real-time tracking and predictive analysis' (van Dijck, 2014, p. 198)" (Mascheroni & Siibak, 2021, p. 12). Notably, the authors avoid a solely descriptive definition of datafication, instead theorising datafication within a social-constructivist understanding of mediatisation. This enables them to apply "non-media-centric" research, which is one of the critical features of contemporary studies of *deeply mediatised* (Hepp, 2019) everyday life.

Chapters 3 to 7 study various aspects of the datafication of the everyday life of youth and offer an in-depth theoretical and empirical analysis of datafication in relation to the practice of the self, parenting, home, peers and education.

In the third chapter, the authors frame datafication as a practice of the self, theoretically anchoring their research in the Foucauldian tradition. They are interested in the growing complex of "human data assemblages" (Mascheroni & Siibak, 2021, p. 4) that surround and involve young people, as mobile apps, wearables and even embodied technologies become domesticated in their everyday lives. Digital media and technologies for wellbeing provide a framework for self-observation and self-formation, whereby young people and their lives – especially their bodies, fitness and health – become self-projects managed through various apps and devices. The study then explores how in-app gamification incentivises the agency of the self-governance of young people into compliant bodies who play by the rules of algorithms and their peers, who can also set milestones for the self-project. In the language of the critique of digital capitalism, children and young people are becoming "self-quantified commodities" (Mascheroni & Siibak, 2021, p. 5). The authors seek solutions for this in regulation and media education. However, their interpretation of the data hints that the young people who participated in the study may be leaning towards accepting their datafied selves as a value generator within surveillance capitalism.

The focus then shifts to parents in the fourth chapter, which explores datafied parenting practices within *constructivist mediatisation theory* (Schrøder, 2019). The study reveals that the mediatisation of parenting begins in the

prenatal phase through pregnancy apps and by sharing ultrasound images of foetuses on social media. The practices of sharenting continue after the birth through sharing family photos and videos online; in addition, "caring dataveillance" is a practice of intimate surveillance obtained through baby monitors of health and wellbeing, as well as parental controls and trackers. Altogether, these mediatised parental practices are permeated by the data-dependent business models of technology companies, whereby parents become entangled in contemporary representations of hypervigilant and overprotective parenthood, and where constant surveillance and togetherness, enabled by digital media, can be seen as an expression of care and affection, even though it often strongly interferes with the child's or young person's autonomy and privacy.

In chapter five, the authors explore mediatised homes as datafied homes on the backdrop of the concept of the mediatised modern home – with reference to Raymond Williams and Roger Silverstone – that "has been co-constituted by social and technological transformation that had the media at their core" (Mascheroni & Siibak, 2021, p. 91). Here, the study explores the domestication of connected digital devices in the family home and observes the transforming relations between the privacy of the home and the public outside world. Practices with smart speakers that turn the home and family life into datafied environments and transform family members into data resources are subjected to a detailed analysis. The results suggest how, as in the case of IoT in general, the domestication of smart speakers scripted to simulate anthropomorphic interactions with users is accompanied by the ambivalent users' desires for better user experience and personalisation, on the one hand, and privacy concerns, on the other. The study of practices with smart speakers among family members then focuses on their incorporation of the speakers into the domestic context. Among other things, the authors conclude that datafication contributes to the commodification of childhood, and that growing up in mediatised homes adds additional layers to the inequalities among contemporary children.

The authors further critique the normalisation of the datafication of children's lives by exploring the mediatisation of peer networks in the sixth chapter, where they focus on several phenomena. Mascheroni and Siibak understand social media as an additional "context of socialisation" (Paus-Hasebrink et al., 2019, p. 24) alongside the domains of the traditional family, school and peers. They examine the reconfiguration of friendship and peer relations on social media, where contacts and interactions serve as a proxy for intimacy. The invisible algorithmic work on social media is a "coded space of identity" (Mascheroni & Siibak, 2021, p. 127) that normalises children's self-identity formations and interpersonal relations among peers. Moreover, online peer networks are

intertwined with algorithmic mechanisms that favour the "visibility of hegemonic representations" (Macheroni & Siibak, 2021, p. 128) and the normalisation of perpetual availability; however, unlimited access to peers via smartphone apps can be an opportunity for emancipation from parents. Furthermore, the study draws attention to digital play as a "highly normative experience of play that actually embodies adults' vision of play" (Macheroni & Siibak, 2021, p. 135) and a typical reduction of young players to digital consumers.

Although the private contexts of everyday life, such as home and family, gain much analytical attention, the authors do not neglect the (semi-)public context of contemporary children's lives in schools. Critically and thoroughly, they address the sometimes lightly advocated narratives such as the personalisation of learning and the platformisation of education, which are technologically possible and were strongly encouraged during the Covid-19 pandemic. As the study shows, surveillance is naturalised in such techno-solutionism and has an enormous effect on the education sector and the lives of students. Data reach – or, better said, data-hungry educational technology – such as learning analytics, attendance tracking apps connected to facial recognition cameras, and proctoring apps that supervise online exams, are just a few examples of technology fed with students' biometric, sociodemographic and behavioural data. It is not just that the rapid transformation of the education sector has been accompanied by a lack of reflection; the digitalisation and datafication of young people's educational life have already had highly problematic consequences and students have been victims of algorithmic discrimination, as the book exemplifies with a case study of the 2020 UK A-level assessments fiasco.

In their conclusions, Mascheroni and Siibak synthesise their research with regard to crucial and very relevant questions about the future of digital society related to the challenges of algorithmic governance and its potential harm, i.e., through surveillance of children's wellbeing, children's rights and the role of automation in democracy. The authors cannot hide their great interest in technology per se, which they reveal in almost enthusiastic descriptions of the technical functionality of various media. They nonetheless manage to maintain a critical distance as researchers whose study consistently highlights the fact that the nature of digital technology is determined by how its data management is socially situated and framed. There is no doubt that *Datafied Childhoods* provides a valuable understanding of questions that are still under researched from the perspective of media studies and pedagogy.

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