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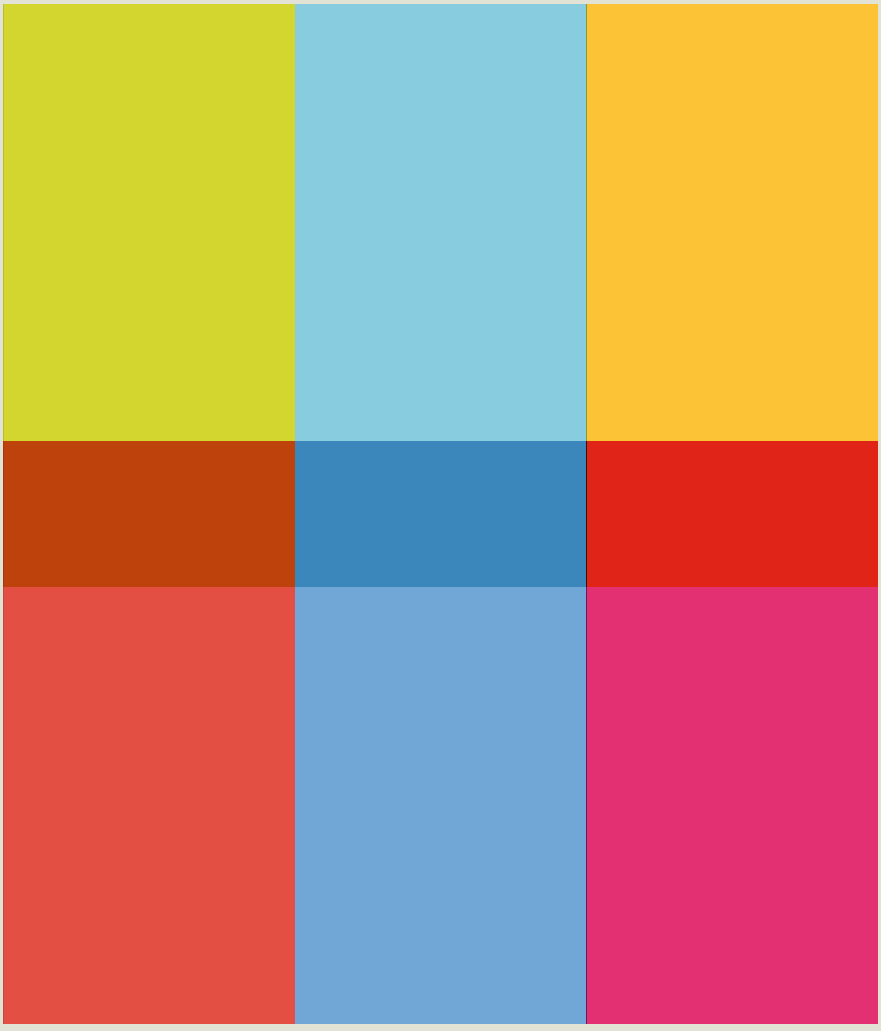

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C·E·P·S *Journal*

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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.

The publication of the CEPS Journal in 2025 and 2026 is co-financed by the Slovenian Research and Innovation Agency within the framework of the Public Tender for the Co-Financing of the Publication of Domestic Scientific Periodicals.

Izdajanje revije v letih 2025 in 2026 sofinancira Javna agencija za znanstvenoraziskovalno in inovacijsko dejavnost Republike Slovenije v okviru Javnega razpisa za sofinanciranje izdajanja domačih periodičnih znanstvenih publikacij.

Contents

Review

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Editorial

The second issue of volume sixteen of the CEPS Journal is devoted to thematically diverse papers: it is not a focus issue. It presents 21 authors from seven different countries including Croatia, Hungary, Portugal, Slovenia, Spain, Tanzania and Türkiye, who discuss different educational areas. The issue is concluded with a book review.

In the first paper, *Student-Centred Approaches in Higher Education From the Student Perspective,* Sabina Ograjšek and Milena Ivanuš Grmek examine students' views on the shift from teacher-centred to student-centred higher education. The study, involving 218 Primary Education students at the Faculty of Education, University of Maribor, explored students' willingness to participate in educational decision-making and their expectations of teachers. The findings show that students favour greater involvement, particularly in assessment decisions, and value teachers' pedagogical competence and supportive roles. Two distinct student groups were identified, highlighting the need for ongoing professional development to support student-centred teaching practices.

The paper entitled *Contradictions and Challenges: University Teachers' Views on Performance Evaluation Models in Portugal and Spain,* by Tania F. Gómez Sánchez, Maria Alfredo Moreira and Begoña Rumbo Arcas, examines university teachers' perceptions of performance evaluation systems in higher education. Drawing on 28 semi-structured interviews conducted at public universities in Portugal and Spain, the authors explore how international accountability trends shape academic working conditions. The findings reveal significant tensions between the stated aims and actual implementation of evaluation policies. The participants perceive evaluation as an externally imposed, weakly democratic process that prioritises quantitative measures and produces uncertain outcomes, raising important questions about quality assurance in higher education.

The third paper, *The Effect of STEM Activities on the Academic Performance of Students With Reading Problems*, by Hilal Aktamış, Zeren Gacar and Ahmet Bildiren, addresses the impact of STEM-based instructional activities on the academic performance of fifth-grade students with reading difficulties in science education. Employing a single-subject ABA research design, the study involved three students in Turkey and was conducted over four weeks. The findings demonstrate notable improvements in student achievement in the science unit "Sun, Earth and Moon", suggesting that STEM activities can effectively support learning among students with reading challenges. Furthermore, the participants expressed a strong willingness to continue learning through

STEM-based approaches. The study contributes valuable evidence regarding inclusive STEM education and its potential to enhance academic outcomes.

In the next paper by Marko Kukanja and Saša Planinc, entitled *Food Safety Knowledge Among Tourism Faculty Undergraduates in Slovenia: Can Social Media Leverage Educational Gaps?*, the authors explore food safety knowledge among tourism students at Slovenia's two public tourism faculties. Based on a questionnaire survey conducted across three academic years, the study reveals a low average knowledge score (52.6%), particularly regarding personal hygiene and foodborne diseases. The findings indicate that neither work experience in hospitality nor social media use can compensate for the lack of formal education in food safety. The authors highlight the urgent need to introduce comprehensive food safety courses into tourism curricula.

In the fifth paper, *Teaching English as a Foreign Language to Students With Disabilities in the Republic of Croatia,* Ana Blažević Simić and Anamaria Titijevski Vidović investigate inclusive practices among Croatian EFL teachers in primary and secondary schools. Using a descriptive qualitative design and a self-constructed questionnaire, the study addresses teachers' education, experiences and institutional support regarding students with disabilities. The findings show that most of the participants lacked formal university training in inclusion, although many had attended professional development courses. While the majority had experience teaching students with learning difficulties and felt relatively prepared, only a small proportion reported sufficient institutional support. The study highlights the need for stronger systemic and professional preparation.

In the next paper, *Personal Practical Knowledge and Effective Teaching: A Study of Turkish Teachers of English as a Foreign Language*, Fadime Yalcin Arslan and Ayse Nur Erdem examine how English as a foreign language teachers' personal practical knowledge shapes their perceptions of effective teaching. Using a qualitative descriptive approach, the authors conducted semi-structured interviews and classroom observations with seven teachers employed in public educational institutions in Turkey. The findings reveal that effective teaching is associated with positive classroom dynamics, student motivation, teacher engagement, meaningful assessment practices and the creation of empowering learning environments. The study highlights the central role of experiential knowledge in fostering effective language instruction.

The next paper by Dejan Zemljak, *Attitudes of Slovenian School Teachers Towards Smart Educational Humanoid Robots in the Classroom,* investigates teachers' perceptions of integrating smart educational humanoid robots into school practice. Drawing on questionnaire data collected from Slovenian

teachers, the study examines their readiness for and attitudes towards the educational use of robotic technologies. The findings indicate that negative attitudes towards classroom robot integration remain prevalent, with many teachers reporting insufficient competence and preparedness to employ such technologies effectively. Gender-related differences were identified in several responses. Nevertheless, teachers expressed more favourable views when considering specific pedagogical applications, highlighting the importance of targeted professional development and practical implementation examples.

In the paper *Preparing Teachers for Inclusive Education: Pre-Service Teachers' Knowledge, Perceptions and Experiences of Inclusive Pedagogy from Teaching Practice,* Blandina Daniel Mazzuki discusses how teacher education programmes prepare pre-service teachers for inclusive education. Using focus group discussions and the SACIE-R questionnaire with 187 participants, the study explores knowledge, perceptions and practical experiences. The findings show that pre-service teachers gain mainly theoretical knowledge, while limited field-based experience restricts their ability to connect theory with inclusive pedagogy. The results also indicate low confidence, concerns and negative attitudes toward inclusion. The study highlights the need to strengthen practical components in teacher education programmes to better support inclusive education.

The ninth paper, entitled *Rethinking Pedagogy in Higher Education Amid Turbulent Times*, by Márta Katalin Korpics and Andrea Bajnok, examines how a university can implement large-scale pedagogical reform in response to the growing pressures facing higher education today, including labour-market demands, digital transformation and the expansion of student populations. The paper focuses on a case study of the reform process launched in 2019 at the University of Public Service in Budapest and explores how institutional change can be sustained through both leadership commitment and teacher engagement. The authors argue that lasting pedagogical change requires more than strategic planning or administrative directives. While institutional leadership is essential for setting goals and providing resources, meaningful reform depends on the active involvement of faculty members. In order to encourage innovation, the university created "innovative pedagogical spaces" through teacher training programmes, workshops, research activities, methodological publications and recognition schemes that rewarded successful educational innovation.

The last paper of this varia issue, *The Relationship Between Chronotype and Academic Achievement Among Slovenian University Students: The Mediating Role of Trait Self-Control and Sleep Quality*, by Katarina Maučec and Vita Štukovnik, examines how chronotype relates to academic achievement. Using

an online survey of Slovenian university students, the study measured chronotype, trait self-control, sleep quality and academic performance through standardised instruments and self-reports. The results show positive correlations among all variables. Mediation analyses indicate that trait self-control significantly explains the link between chronotype and both objective and subjective academic achievement, while sleep quality partially mediates only subjective outcomes. The findings offer new insights into psychological and behavioural pathways underlying academic performance differences.

This varia issue ends with a review of the book *Classrooms of Many Voices: Culturally and Linguistically Responsive Pedagogy* by Melita Lemut Bajec, Karmen Pižorn and Jasna Fakin Bajec, University of Ljubljana, Faculty of Education Press (2026). The review highlights the relevance of multilingual and inclusive pedagogy, as well as reflective practice and classroom diversity for teachers.

Across the papers in this varia issue, a shared focus emerges on the complex conditions shaping teaching, learning and educational change across contexts and levels. From inclusive education and STEM interventions to higher education governance, teacher beliefs, digital technologies and student outcomes, the studies highlight persistent gaps between policy intentions, pedagogical practice and institutional support. They consistently emphasise the importance of practical experience, teacher competence and supportive environments for effective implementation. Together, the contributions underline the need for more coherent, evidence-informed and inclusive education systems that better connect theory, practice and learner diversity in contemporary education.

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Student-Centred Approaches in Higher Education From the Student Perspective

Sabina Ograjšek*[1] and Milena Ivanuš Grmek[2]

Teaching approaches in higher education have been the subject of considerable research, which has resulted in a paradigm shift from teacher-centred to student-centred approaches. The present study investigates this shift, focusing on student eagerness to participate in various aspects of education and their expectations of teachers' roles. It includes 218 students enrolled in the Primary Education programme at the Faculty of Education, University of Maribor, in the 2023–2024 academic year. Through a questionnaire, diverse student attitudes towards student-centred approaches were revealed. Students expressed a desire to participate in decision-making about their education, particularly in choosing types of assessment and, to a lesser extent, in designing the curriculum. They also expect teachers to transcend traditional roles, emphasising the need for sound pedagogical skills and a supportive learning environment. Based on their attitudes towards student-centred approaches, two distinct groups of students were identified. These groups exhibited statistically significant differences in their academic behaviour. The study underscores the need for ongoing professional development for teachers in order to meet students' preferences.

Keywords: higher education, teacher education, student-centred approach, balance of power, role of the teacher

1 *Corresponding Author. Faculty of Education, University of Maribor, Slovenia; sabina.ograjsek@um.si.
2 Faculty of Education, University of Maribor, Slovenia.

Pristopi, osredinjeni na študenta, v študijskem procesu s perspektive študenta

Sabina Ograjšek in Milena Ivanuš Grmek

Pristopi k poučevanju v visokem šolstvu, ki so predmet številnih raziskav, doživljajo paradigemski premik od pristopov, osredinjenih na učitelja, k pristopom, osredinjenim na študenta. V raziskavi obravnavamo ta premik s poudarkom na želji študentov po sodelovanju v različnih segmentih izobraževanja in njihovih pričakovanjih glede vlog učiteljev. Študija vključuje 218 študentov razrednega pouka na Pedagoški fakulteti Univerze v Mariboru v študijskem letu 2023/24. S pomočjo anketnega vprašalnika smo ugotovili raznolika mnenja študentov o pristopih, osredinjenih na študenta. Študentje so izrazili željo po sodelovanju pri odločanju o svojem izobraževanju, še posebej pri izbiri oblik ocenjevanja in manj pri načrtovanju učnega načrta. Prav tako pričakujejo, da bodo njihovi učitelji presegli tradicionalne vloge, pri čemer poudarjajo potrebo po dobrih pedagoških spretnostih učiteljev in spodbudnem učnem okolju. Raziskava je identificirala dve različni skupini študentov na podlagi njihovih mnenj do pristopov, osredinjenih na študenta. Med tema skupinama so bile ugotovljene statistično značilne razlike v akademskem vedenju. Študija poudarja potrebo po stalnem strokovnem razvoju učiteljev za zadovoljevanje različnih preferenc študentov.

Ključne besede: visoko šolstvo, izobraževanje učiteljev, pristopi, osredinjeni na študenta, ravnovesje moči, vloga učitelja

Introduction

The rapid development of higher education has prioritised the quality of teaching and learning, setting forth new requirements and tasks for teachers (Ho et al., 2001). Therefore, the emphasis on student-centred approaches in the European higher education area, including Slovenia, addresses the specific needs of an increasingly diverse student body (Cendon, 2018; Lea et al., 2003) as well as society's demands for individuals to develop versatile professional skills and become lifelong learners during their education (Asikainen & Gijbels, 2017). The idea of student-centred approaches is not new. It was formed in the last century and is associated with the ideas of progressive, humanistic and critical pedagogy, as well as constructivism, reform pedagogy and andragogy (Hoidn & Reusser, 2021). At the end of the last century, Barr and Tagg (1995) noted that a paradigm shift from teaching to learning, and thus from teacher-centred approaches to student-centred approaches, was taking place in higher education (Wagner & McCombs, 1995).

Hoidn (2016) notes that the implementation of student-centred approaches in educational practice is occurring much more slowly than expected. Similarly, McKenna and Quinn (2021) assert that, despite widespread advocacy for such approaches, teaching predominantly remains traditional, transmissive and teacher-centred. According to Børte et al. (2020), resistance to implementing student-centred approaches may arise from a combination of factors, including institutional, pedagogical, spatial, teacher-related, student-related and technological barriers.

In the context of ongoing changes and student diversity in higher education, it is imperative to explore and comprehend diverse pedagogical approaches to ensure high-quality education that addresses student needs and societal demands.

Teaching Approaches

Understanding the role of the teacher is essential for the successful implementation of modern teaching approaches. Teachers are responsible for the complete cycle of teaching activities, including planning, preparation, guidance, execution and assessment, as well as the enhancement and ongoing development of instructional practices (Kramar, 2009). Thus, teachers play a pivotal role in implementing student-centred approaches. It is essential to avoid compelling teachers to adopt these approaches until they fully appreciate their importance (Guo, 2016; Li & Ding, 2023). Kember (2009) suggests that resistance

to student-centred approaches by teachers may be rooted in their conceptions of teaching (Ho et al., 2001), as well as the intentions underlying their chosen teaching strategies, as Trigwell et al. (1994) have identified.

In a phenomenographic study, Trigwell et al. (1994) identified five qualitatively different approaches to teaching, ranging from those involving the transmission of information to those where the aim is to develop learning through conceptual changes:

1. Approach A: a teacher-centred strategy with the intent of transmitting information to students;
2. Approach B: a teacher-centred strategy with the intent of students' acquisition of disciplinary concepts;
3. Approach C: a teacher-student interaction strategy with the intent of students' acquisition of disciplinary concepts;
4. Approach D: a student-centred strategy with the intent of developing students' conceptions;
5. Approach E: a student-centred strategy with the intent of changing students' conceptions.

Understanding the link between a teacher's intentions and strategies is fundamental to effective teaching (Mladenovici & Ilie, 2023; Trigwell & Prosser, 1996; Trigwell et al., 1994). Indeed, teachers who perceive learning as accumulating information to satisfy external criteria also view teaching as transmitting information to students and tend to use teaching approaches with teacher-centred strategies. Conversely, teachers who perceive learning as the development and change of students' conceptions view teaching as assisting students in developing and changing their conceptions and carry out their teaching approach in a student-centred manner (Prosser & Trigwell, 1998).

Kember (1997) developed a multi-level model based on research into teachers' conceptions of teaching, encompassing five conceptual categories: 1) imparting information; 2) transmitting structured knowledge; 3) student-teacher interaction; 4) facilitating understanding; and 5) conceptual change/ intellectual development The first two categories represent a teacher-centred or content-oriented approach, while the latter two indicate a student-centred or learning-oriented approach. The intermediate category, student-teacher interaction, acts as a conduit between these orientations. Since many teachers primarily view themselves as subject-matter experts, they tend to adopt a content-oriented view of teaching, which poses a challenge in persuading them to embrace student-centred approaches, even in the face of evidence demonstrating the efficacy of such approaches (Kember, 2009).

Åkerlind (2004) reached similar conclusions in her research on the significance and experience of being a teacher, identifying four understandings that vary according to teaching experience: 1) an experience focused on the teacher's transmission of knowledge; 2) an experience focused on the relationship between teacher and student; 3) an experience focused on student engagement; and 4) an experience focused on student learning. The understanding of the teacher's role varies based on the role attributed to the students (from passive recipients to active creators), the benefits for the student (from acquiring knowledge to personal development), the benefits for the teacher (from gaining subject knowledge to personal satisfaction and expanding their understanding), and the broader benefits (from benefits solely for the students to benefits for the profession and society). The study identified a hierarchical relationship between these perceptions, suggesting a progression from a simpler to a more sophisticated and comprehensive understanding of teaching.

Teaching intentions, therefore, range from transmitting disciplinary content (i.e., teacher-centred) to fostering changes in students' perceptions of the subject content (i.e., student-centred) (Åkerlind, 2004; Trigwell et al., 1994; Prosser & Trigwell, 2014). This range demonstrates the diversity of pedagogical approaches, with student-centred approaches being regarded as more effective than teacher-centred ones due to their enhanced focus on student learning and development (Åkerlind, 2004; du Plessis, 2020; Guo, 2016). Importantly, student-centred approaches are not intended to replace teacher-centred practices, but rather to complement them (Hoidn & Klemenčič, 2021; Klemenčič, 2017). By integrating teacher-centred and student-centred approaches, teachers can cultivate a dynamic learning environment that offers structure, expertise and guidance, while promoting student autonomy, collaboration and research (du Plessis, 2020; Elen et al., 2007). The preceding discussion has highlighted some key features of these approaches, which will be examined in greater detail in subsequent sections for an in-depth understanding.

Teacher-Centred Approaches

In teacher-centred approaches, the teacher is responsible for determining what is taught, when it is taught and under what conditions (Spencer & Jordan, 1999). The teacher's role involves transmitting knowledge structured and defined from their own or an expert's viewpoint (Schuh, 2004; Wagner & McCombs, 1995). Within this framework, students are typically perceived as passive recipients of information, with the instructional focus predominantly on memorising and replicating knowledge (Åkerlind, 2004).

Cuban (1983) identifies several key indicators of teacher-centred

approaches, namely 1) teachers talk much more than students during teaching; 2) most of the teacher's questions are related to the retrieval of factor knowledge; 3) most teaching is done in large groups rather than in small groups or individually; 4) the teacher defines the use of time; 5) the assessment mainly involves the recall of factorial knowledge; and 6) classrooms are arranged with desks in rows facing the blackboard. The underlying premise is that teachers are required to facilitate specific conditions conducive to students achieving the intended learning outcomes (Wagner & McCombs, 1995).

Student-Centred Approaches

Weimer (2002), emphasising learning and the student at the core of the educational process, proposed changes in teaching, thus enhancing the understanding of student-centred approaches. These include 1) shifting the balance of power from teacher to student, evidenced by collaborative decision-making; 2) defining content as a tool for knowledge construction and skill development; 3) positioning the teacher as a learning process facilitator; 4) transferring learning responsibility to students; and 5) reorienting assessment to foster learning and feedback, and to develop self-assessment and peer assessment skills among students.

Within the framework of student-centred approaches, instructional forms emphasise empowering students to construct their knowledge, make decisions and actively engage in various activities, while also contributing to educational planning (Hoidn & Reusser, 2021). The characteristics of student-centred approaches therefore typically include: 1) students engaging in discussions about the learning task as much as, or more than, teachers; 2) students initiating questions at least as frequently as teachers; 3) the predominance of teaching in small to medium-sized groups, or on an individual basis; 4) student involvement in selecting learning content; 5) teacher facilitation of student participation in establishing study-related guidelines; 6) the availability of diverse learning resources; and 7) an adaptable learning environment designed to support group work, pair work or individual tasks, facilitated by flexible seating arrangements such as movable desks and chairs (Cuban, 1983).

To summarise, using the definition provided by Collins and O'Brien (2011, p. 446), a student-centred approach is "an instructional approach employing creative methodologies in which students become the centre of the learning process by influencing the content, activities, materials, and pace of learning. If properly implemented, the SCI approach strengthens retention of knowledge and increases motivation to learn". In the following sections, we explore additional significant impacts of student-centred approaches.

Relevance and Effectiveness of Student-Centred Approaches

The implications and efficacy of student-centred approaches are better comprehended by examining the rationale behind their emphasis and adoption in higher education. Schweisfurth (2013) identifies three key reasons for the implementation of these approaches. Firstly, the cognitive perspective highlights the fact that students' learning is more effective when they exert greater control over their educational process and receive guidance. Secondly, the emancipatory perspective suggests that student-centred approaches contribute to broader societal advantages, such as diminishing inequalities, amplifying student voices and fostering a more flexible understanding of knowledge. Lastly, the preparatory perspective is predicated on the belief that such approaches equip students more effectively for the challenges of an evolving world, primarily through developing metacognitive abilities and research skills.

Studies (Kember, 1997; Prosser & Trigwell, 2014; Trigwell et al., 1994; Trigwell et al., 1999; Uiboleht et al., 2018) also show parallels between teachers' approaches to teaching and students' approaches to learning, and thus learning outcomes. Specifically, teacher-centred approaches lead to more superficial approaches to learning, while student-centred approaches are associated with a deeper approach to student learning. This correlation aligns with expectations, given that student-centred approaches have been shown to positively influence the development of content comprehension, critical thinking and student motivation (Lea et al., 2003; Treesuwan & Tanitteerapan, 2016; Yap et al., 2016). Furthermore, these approaches promote student independence and collaboration (Li & Ding, 2023).

Through a systematic review, Bremner et al. (2022) examined the outcomes of implementing student-centred approaches. The investigation revealed a spectrum of outcomes encompassing classroom dynamics, learner perceptions, academic achievements, emotional well-being and the quality of interpersonal connections. Notably, the review underscored a scarcity of studies presenting objective evidence regarding the efficacy of these approaches. Conversely, a considerable volume of research pointed to subjective indicators of success, such as favourable attitudes towards these approaches among teachers and learners, increased motivation and self-assurance among students, and enriched social interactions. Li and Ding (2023) report that student-centred approaches benefit students' non-academic accomplishments, thus fostering personal and social skill development. Additionally, du Plessis (2020) underscores the enhancement of communicative and cooperative competencies as an advantage of student-centred approaches.

In applying these approaches, teachers must consider students' perspectives and support their existing abilities to achieve desired learning outcomes (Schuh, 2004). Consequently, teachers should acknowledge and address students' attitudes towards student-centred approaches.

Student Attitudes Towards Student-Centred Approaches

From the student perspective, student-centred approaches are perceived as effective, engaging and successful (Mastrokoukou et al., 2022). Du Plessis (2022) notes that students acknowledge the value of student-centred approaches in shaping concepts, methods and teaching strategies within a conceptual framework. Additionally, students recognise the importance of active engagement and participation in the educational process and the necessity of actively constructing their knowledge. However, students did not identify the fact that student-centred approaches also entail learning critical thinking skills such as problem-solving, evaluation of evidence, argument analysis or hypothesis formulation. Disciplinary issues, overcrowded classrooms and time limitations were cited as challenges associated with student-centred approaches.

Treesuwan and Tanitteerapan (2016) note that students have a favourable view of the effects of implementing student-centred approaches, as such implementation has improved interactions with peers and teachers, increased confidence in expressing ideas and enabled the use of various learning strategies. In discussions conducted by Lea et al. (2003) regarding the spectrum of teaching and learning approaches, students voiced concerns over approaches that lack structure, guidance and support. They underscored the importance of a balanced approach that avoids an excessive tilt towards teacher-centred or student-centred practices. This underscores the need for a balance between the roles of students and teachers in order to ensure equity in educational opportunities. Such equilibrium is vital in optimising learning outcomes for the entire student body, not merely the most dedicated or academically gifted individuals.

Research Problem and Research Questions

In planning changes, educational institutions are encouraged to transition from an 'inside-out' approach, whereby teachers dictate educational best practices, to an 'outside-in' approach that prioritises understanding and addressing student expectations (Lea et al., 2003).

The present study therefore explores student perspectives on various elements typical of student-centred approaches. Drawing upon the reforms

suggested by Weimer (2002), our focus is on the balance of power and the role of the teacher. We investigated the students' desire to participate in decision-making processes concerning the curriculum, content, teaching methods and forms, assessment and academic responsibilities. We also sought to understand students' expectations of the teacher's role, specifically their expectations of the teacher as a facilitator in the learning process. Our objective was to ascertain student openness to some aspects of student-centred approaches. It is important to clarify that our research did not examine the actual implementation of these approaches in the students' current educational settings.

We also sought to identify groups of students with shared perspectives on power dynamics and teacher roles in education, and to ascertain whether there are disparities in academic behaviours between these groups based on their self-reported frequency of lecture and tutorial attendance, effort invested in academic obligations, time dedicated to study per day, motivation, and activity during the lessons.

The research targeted primary education students, emphasising, as du Plessis (2020) suggests, the importance of student-centred approaches in teacher training institutions. It is essential for aspiring teachers to be proficient in these approaches in order to enhance the learning experiences of their future students (Mithans et al., 2017a).

The research was structured around the following research questions:

1. To what extent do students desire to participate in decision-making processes about their education?
2. What are students' expectations of teachers' roles in education?
3. Can distinct groups of students be identified based on their perspectives on power dynamics and teacher roles in education?

We also introduced an additional research question related to the third question:

3.1 Are there any disparities in academic behaviours between different student groups?

Method

Participants

The research was based on a convenience sample of 218 students enrolled in the Primary Education programme[3] at the Faculty of Education, University of Maribor, in the 2023–2024 academic year. A more detailed description of the sample is presented in Table 1.

Table 1

Structure of the sample of students

		f	*f* %
Degree and year of study	1st degree	200	91.7
	1st year	57	26.1
	2nd year	53	23.9
	3rd year	43	19.7
	4th year	48	22.0
	2nd degree	18	8.3
	1st year	18	8.3
Average grade[4]	*M* = 8.60, *SD* = 0.69, MIN = 6.53, MAX = 10.00		

Note. M = mean; *SD* = standard deviation.

Instrument

For research purposes, we developed a questionnaire organised into two thematic sections. The first section contained questions on various aspects of academic behaviours, including the frequency of attending lectures and tutorials (with a response scale ranging from 'never' to 'very often'), student activity during the study process (with a scale from 'not at all active' to 'very active'), the number of hours the students allocate to studying outside the classroom, the effort they invest in completing assignments and projects (with a scale from 'very low effort' to 'very high effort'), and their motivation levels for their studies (with a scale from 'very unmotivated' to 'very motivated'). The second section of the questionnaire focused on some aspects of student-centred approaches in higher education. Specifically, it comprised ten items concerning the students' desire to participate in the educational decision-making process and their

3 In the Methods and Results section, the term 'students' will refer specifically to those enrolled in the Primary Education programme.

4 First-year students were excluded from the calculation of the average study grade.

expectations regarding the teacher's role in education. The responses ranged from 'not at all true for me' to 'very true for me'. At the end of the questionnaire, the students provided basic demographic information, including their degree and year of study, as well as their average grade.

Research Design

The research data were collected at the Faculty of Education, University of Maribor, in the first half of November 2023. An online questionnaire was created to obtain the data. The students were personally invited to participate in the research and accessed the questionnaire via a QR code. The questionnaires were completed in the classroom, typically taking less than five minutes. While the students were filling out the questionnaires, the researchers were available to address any questions. The procedures followed ethical guidelines, ensuring anonymity and voluntary participation. The participants also had the option of withdrawing from the study at any time without facing any consequences.

Data analysis was performed using IBM SPSS 29.0 and JASP 0.18.1. The data processing involved both descriptive and inferential statistics. Before the analysis, a check was undertaken for missing values, which were less than 10% and were treated by mean substitution. At the level of descriptive statistics, the mean (*M*), standard deviation (*SD*), minimum (MIN) and maximum (MAX) values were used, as well as coefficients of skewness and kurtosis.

In order to verify the assumptions for exploratory factor analysis (EFA), the database was first checked for univariate outliers in the items assessing the students' favourability towards certain elements typical of student-centred approaches in higher education. Mowbray et al. (2018) suggest using standardised (z) values as an objective method to identify univariate outliers, where any standardised (z) value above 3.29 or below –3.29 is considered an outlier (Tabachnick & Fidell, 2013). The database was found to be free of univariate outliers. Subsequently, a check was undertaken for multivariate outliers, using Mahalanobis distance as a basis. Cases with p-values less than 0.001 were identified as multivariate outliers (Hair et al., 1998).

One such case was encountered in the database, which was excluded from further analysis. The univariate normal distribution of the items was assessed using the Shapiro–Wilk test and by analysing skewness and kurtosis coefficients. The Shapiro–Wilk test revealed deviations from the normal distribution in all items ($p < 0.05$). The skewness coefficients ranged from –1.20 to –0.33, while the kurtosis coefficients varied from –0.67 to 0.74. The literature presents varying threshold values, from the more lenient ones suggested by Byrne (1998) – skewness values within ±3 and kurtosis values between ±7 – to

more restrictive ones, such as those proposed by George and Mallery (2010), who consider values between ±1 as excellent and up to ±2 as acceptable. All of the items displayed coefficient values within ±2, making them suitable for further analysis. Multivariate normality was examined using Mardia's coefficient, which was 11.38, indicating a deviation from multivariate normal distribution. Therefore, exploratory factor analysis was undertaken using the principal axis method, which is a suitable approach when the assumption of multivariate normality is violated (Fabrigar et al., 1999).

Hierarchical and k-means clustering analysis were subsequently used. The objective was to identify distinct groups of students, thereby enhancing our understanding of students' attitudes towards student-centred approaches in higher education. Since the assumptions of normal distribution and homogeneity of variances were met, the t-test for independent samples was used to determine whether the clusters differed on the two scales.

Following the cluster analysis, the students were classified into two groups based on their attitudes towards different aspects of student-centred approaches in higher education. The Mann-Whitney test was utilised to identify statistically significant differences in academic behaviours between these two groups. This test was selected due to the dependent variables not being approximately normally distributed within each independent variable group.

Results

The research examines student perspectives on student-centred approaches in education, primarily focusing on students' involvement in decision-making processes and their expectations of teachers' roles in education. Furthermore, it seeks to identify distinct groups of students based on these perspectives and examine any disparities in their academic behaviours.

Table 2

Students' self-assessments of their desire to participate in decision-making about their education

Item	*N*	*M*	*SD*	MIN	MAX
I want to participate in choosing the types of assessment that will be used in each subject.	218	5.22	1.34	1	7
I want to participate in designing rules related to academic obligations (submission deadlines, attendance, etc.).	218	4.98	1.62	1	7
I want to participate in selecting the teaching methods and forms that will be used in each subject.	218	4.82	1.50	1	7
I want to participate in choosing the content for each subject.	218	4.76	1.59	1	7
I want to participate in designing the curriculum for each subject.	218	4.16	1.65	1	7
Cronbach α = 0.85					

Note. M = mean; *SD* = standard deviation; rating scale: 1 = not at all true for me to 7 = very true for me.

As shown in Table 2, the item concerning participation in selecting types of assessment received the highest rating from the students. This is followed by items about participation in developing rules associated with academic obligations, in selecting teaching methods and forms, and in choosing educational content. The item about participation in curriculum design received the lowest rating. Although the desire to participate in curriculum design was the least expressed, the mean values (*M*) for all of the educational aspects were relatively high, indicating a general desire among the students to be involved in decision-making about their education. The standard deviations (*SD*) across all of the items reveal a diversity of student responses, suggesting a range of preferences for participation levels in decision-making about their education.

Table 3

Students' self-assessments of expectations regarding the teacher's role in education

Item	*N*	*M*	*SD*	MIN	MAX
I appreciate it when teachers demonstrate good pedagogical skills that extend beyond the traditional transmission of information.	218	6.21	0.99	3	7
I expect teachers to be open to changing their traditional roles and willing to adopt new approaches to teaching.	218	5.70	1.16	2	7
It is important to me that teachers focus more on creating a supportive learning environment rather than merely transmitting information.	218	5.42	1.23	2	7
I see the teacher's role in education as guiding my learning process.	218	5.31	1.16	2	7
It is important to me that teachers focus less on directly transmitting information and more on encouraging learning.	218	5.18	1.25	2	7
Cronbach α = 0,75					

Note. M = mean; *SD* = standard deviation; rating scale: 1 = not at all true for me to 7 = very true for me.

The item emphasising the importance of teachers' good pedagogical skills, extending beyond traditional information transmission, received the highest rating from the students. This was followed by the item about expecting teachers to be open to changing their traditional roles and adopting new teaching approaches. The items concerning the teacher's role in creating a stimulating learning environment, rather than merely transmitting information and guiding the learning process received slightly lower ratings. The item about the significance of teachers focusing less on direct information transmission and more on encouraging learning obtained the lowest rating, although it was still relatively high. The mean values for all of the aspects are quite high, reflecting the students' expectations for teachers to adopt roles aligned with student-centred approaches and to be innovative in their teaching. The standard deviations across all of the items suggest diversity in the students' expectations, possibly indicating varied student preferences concerning the teacher's role in education. Notably, the students did not select the response 'not at all true for me' in any of the items presented in Table 3, indicating that no item was rejected entirely by the students.

The interpretations presented for the mean values and standard deviations of various items offer an insight into the students' desire to participate in decision-making about different aspects of education and their expectations

concerning the role of teachers. Exploratory factor analysis (EFA) was employed to gain a deeper understanding of the complex patterns in the responses and potential latent dimensions underlying individual items. The suitability of EFA was assessed prior to analysis, as described in the Research Design section. The principal axis factoring method was used, as it is a suitable approach when the assumption of multivariate normality is violated (Fabrigar et al., 1999). From the correlation matrix, the strength of correlations between items was examined. It was found that all of the items exhibited a Pearson correlation coefficient (r) greater than 0.3 in at least one correlation, thus justifying the continuation of the analysis. The Kaiser-Meyer-Olkin (KMO) test confirmed the adequacy of the sampling, with an overall KMO over 0.8 (KMO = 0.86) and individual item KMO values meeting or surpassing 0.8. Bartlett's test of sphericity was statistically significant ($p < 0.001$), indicating that the data was probably factorisable. Given these results, the analysis proceeded. Employing the eigenvalue criterion and retaining factors with an eigenvalue above 1, two factors were extracted that accounted for 46.7% of the variance. Oblique rotation was applied to improve the interpretability of these factors. The factor weights are presented in Table 4. The items loading on the same factor indicate that factor 1 represents a student's desire to participate in decision-making about their education, while factor 2 reflects the student's expectations of teacher roles in education. Factor scores were obtained by averaging the corresponding items.

Table 4

Rotated structure matrix for EFA with principal axis factoring

Items	Rotated factor loadings	
I want to participate in selecting the teaching methods and forms that will be used in each subject.	0.90	
I want to participate in designing the curriculum for each subject.	0.76	
I want to participate in choosing the content for each subject.	0.68	
I want to participate in designing rules related to academic obligations.	0.57	
I want to participate in choosing the types of assessment that will be used in each subject.	0.45	
It is important to me that teachers focus more on creating a supportive learning environment rather than merely transmitting information.		0.66
I appreciate it when teachers demonstrate good pedagogical skills that extend beyond the traditional transmission of information.		0.62
I expect teachers to be open to changing their traditional roles and willing to adopt new approaches to teaching.		0.60
I see the teacher's role in education as guiding my learning process.		0.56

Items	Rotated factor loadings	
It is important to me that teachers focus less on directly transmitting information and more on encouraging learning.		0.53
Eigenvalues	4.46	1.26
% of variance	25.5	21.2
Cronbach α	0.85	0.75
M	4.79	5.56
SD	1.26	0.82

Note. M = mean; *SD* = standard deviation.

A cluster analysis on latent variables was conducted: the students desire to participate in decision-making about their education and their expectations regarding the role of teachers. The objective was to identify distinct student groups, thereby enhancing our understanding of the students' attitudes towards student-centred approaches in higher education. In the cluster analysis, standardisation was applied to the data using z-scores for each variable. The hierarchical clustering analysis with Ward's method was initially employed, revealing two clusters through the dendrogram. Subsequently, k-means clustering analysis was conducted with eight iterations, using a convergence criterion of no change in cluster centres. The silhouette score was higher than 0.5, indicating high-quality clustering. This analysis distinguished two groups of students:

Group 1: Characterised by a higher desire among students to participate in decision-making about their education (M = 5.51) and higher expectations regarding the role of teachers (M = 6.09) in accordance with the role that teachers encompass in student-centred approaches. We perceive this group of students as more receptive to the principles underlying student-centred approaches in higher education (N = 123).

Group 2: Comprising students with a lower desire to participate in decision-making about their education (M = 3.85) and more modest expectations of the teacher's role (M = 4.86). We view this group as less receptive to the principles underlying student-centred approaches in higher education (N = 95).

The independent samples t-test was statistically significant, evaluating the relationship between belonging to one of the two clusters and the students' desire to participate in decision-making about their education (t = -13.52, $p < 0.001$). The two clusters also differed statistically significantly regarding the students' expectations of teacher roles in education (t = 15.76, $p < 0.001$).

Subsequently, our goal was to determine whether there were differences between the two groups in various aspects of their academic behaviours, as presented in Table 5.

Table 5

Students' self-assessments of various aspects of their academic behaviours

Item	*N*	*M*	*SD*	MIN	MAX
Tutorial attendance	218	4.98	0.15	1	5
Lecture attendance	218	4.24	0.93	1	5
Effort invested in assignments and projects	218	4.01	0.73	1	5
Study motivation	218	3.85	0.89	1	5
Engagement during the study process	218	3.65	0.79	1	5
Daily study time	218	2.08	1.26	0	6

Note. M = mean; *SD* = standard deviation; rating scales: 1 = never to 5 = very often; 1 = very low effort to 5 = very high effort; 1 = very unmotivated to 5 = very motivated; 1 = not active at all to 5 = very active.

The data presents a consistent trend of high tutorial attendance among the students, indicating that tutorials are a regularly attended component of their academic routine. Although generally well attended, lectures show a broader range of attendance frequencies compared to tutorials, suggesting a greater diversity in the students' dedication to attending lectures. The students also report investing a high level of effort in their assignments and projects. Study motivation is rated as quite high and moderate engagement during the study process is observed, which includes activities such as questioning, participating in discussions, note-taking and preparing for classes. The students estimated that, on average, they dedicate approximately two hours per day to studying outside of the classroom (reviewing lecture materials, completing assignments, or preparing for upcoming examinations or presentations).

The Mann-Whitney U test was performed to determine whether there were differences in self-assessed academic behaviours between the students identified as more supportive of certain elements typical of student-centred approaches in higher education and those identified as less supportive.

Table 6

Comparison of the two groups by the Mann-Whitney U test

		N	Mean Rank	*U*	*p*
Tutorial attendance	More supportive of student-centredness	123	111.11	5644.00	0.097
	Less supportive of student-centredness	95	107.41		
Lecture attendance	More supportive of student-centredness	123	117.33	4880.00	**0.023**
	Less supportive of student-centredness	95	99.37		
Effort invested in assignments and projects	More supportive of student-centredness	123	121.34	4386.50	**< 0.001**
	Less supportive of student-centredness	95	94.17		
Study motivation	More supportive of student-centredness	123	121.05	4422.00	**< 0.001**
	Less supportive of student-centredness	95	94.55		
Engagement during the study process	More supportive of student-centredness	123	121.48	4369.50	**< 0.001**
	Less supportive of student-centredness	95	93.99		
Daily study time	More supportive of student-centredness	123	112.37	5489.00	0.428
	Less supportive of student-centredness	95	105.78		

As shown in Table 6, the Mann-Whitney test revealed statistically significant differences in four of the six evaluated aspects of student academic behaviours: lecture attendance, effort invested in assignments and projects, study motivation, and engagement during the study process. The students identified as more supportive of elements underlying student-centred approaches in higher education reported higher lecture attendance, greater study effort, increased motivation and more active engagement during the study process than their peers who were less supportive of such principles. No statistically significant differences were found for tutorial attendance and daily study time.

Discussion

Creating a learning environment where students can learn effectively and successfully is increasingly becoming a prerequisite for effective education. This requires that teachers not only be experts in their respective fields, but also understand the diverse needs of their students (Spencer & Jordan, 1999). In line with this, the importance of active collaboration between teachers and students in making decisions about various educational aspects is gaining emphasis (Wagner & McCombs, 1995; Weimer, 2002).

Despite the highlighted need for collaboration between teachers and students, it is not a given that students are always interested in participating (Mithans et al., 2017a, 2017b). Thus, our research focused on the desire of students to engage in decision-making processes related to their education, such as curriculum, content, teaching methods and forms, assessment and rules related to academic obligations. Students need preparation for student-centred approaches, but this does not justify making decisions on their behalf (Weimer, 2002). Our findings reveal that students want to participate in the decision-making processes related to their education. Specifically, the students surveyed expressed the most interest in participating in decisions about types of assessment and the least interest in designing the curriculum. A general desire among the students to collaborate in educational decision-making was observed. This insight carries significant implications for educational institutions: incorporating students' feedback and preferences could create more engaging and supportive learning environments tailored to students' interests and desires.

In most educational institutions, the focus remains on teachers (McKenna & Quinn, 2021). Consequently, we explored the expectations students have regarding the role of teachers in education. Students expect their teachers to fulfil roles that extend beyond merely transmitting information. They hope teachers will demonstrate solid pedagogical skills, be open to revising their traditional roles, and thus be willing to embrace new teaching approaches, create supportive learning environments and guide the learning process. Since students hold these high expectations, which align with the principles of student-centred approaches, it is imperative to encourage teachers to explore and adopt various teaching approaches.

The choice of teaching approach is often influenced by teachers' concepts of teaching and their intentions (Kember, 1997; Trigwell et al., 1994). It is important to note that student-centred approaches may not be the best fit for teachers primarily focused on transmitting information, as they can lead to ineffective teaching and learning (Trigwell et al., 1994). Prior to implementing

student-centred approaches, teachers require training (Aškerc Veniger, 2016) that reshapes their existing conceptions of teaching, directing them towards fostering student learning (Ho et al., 2001). Furthermore, as student-centred approaches continue to evolve, regular training sessions are necessary to enhance teachers' knowledge and confidence in teaching, thereby equipping them to adhere to student-centred approaches (Li & Ding, 2023). Additionally, presenting teachers with examples of effective practices is crucial. Mladenovici and Ilie (2023) have shown that changes in teaching concepts can also result from observing the impacts of specific teaching approaches on student learning.

As student-centredness requires a high degree of independence, learning ability, teamwork and collaboration (Li & Ding, 2023), it is not surprising that we identified two different groups of students who differ in their desire to participate in making decisions about education and the expectations of the teacher. This dichotomy suggests that a universal teaching approach may not be effective, aligning with the findings of other studies (du Plessis, 2020; Elen et al., 2007; Hoidn & Klemenčič, 2021; Klemenčič, 2017). Teaching approaches need to be sufficiently flexible to accommodate diverse student preferences. However, it is important to note, as Uiboleht et al. (2018) found, that learning outcomes and student approaches to learning were of somewhat higher quality with a consistent learning-focused teaching approach than with a dissonant approach (combining elements of teacher-centred and student-centred elements), although the latter did not always result in inferior learning approaches and outcomes.

Additionally, students favouring certain elements of student-centred approaches exhibited better academic behaviour, including higher lecture attendance, increased effort, greater motivation and more active class participation. Interestingly, no differences were observed in the frequency of attending tutorials, which can be attributed to their usual mandatory nature. These findings could indicate that students' academic behaviour and attitudes are shaped not only by the teaching approaches they encounter, but also by their personal beliefs and preferences regarding how they learn best. This underscores the importance of considering student preferences in shaping educational experiences and highlights the significance of promoting student-centred approaches.

Conclusion

The study highlights the need for interactive and collaborative education involving teachers and students. It emphasises the importance of understanding and integrating students' expectations and preferences in the educational process. Research indicates that students desire to be involved in educational decision-making and expect teachers to adopt roles extending beyond traditional information transmission. These insights underscore the need for educational institutions to foster engaging, supportive environments that resonate with student interests. The study also emphasises the importance of continuous teacher training, which should equip teachers with the necessary skills to meet the evolving expectations of their students and the demands of contemporary educational settings.

The research has several limitations. Firstly, it uses a convenience sample from a specific programme at the University of Maribor, thus limiting its generalisability. Secondly, it relies on subjective, self-reported data from students. Furthermore, the study focuses on specific elements of student-centred approaches, not encompassing all aspects, and lacks objective measures to assess the effectiveness of these approaches, relying mainly on students' perceptions. These factors suggest caution in interpreting and applying the findings beyond the context of the study.

In terms of future research directions, given the identification of distinct student groups with different preferences concerning student-centred approaches in this study, it is recommended that subsequent studies focus on comparing the outcomes of student-centred approaches with more flexible, hybrid approaches that combine elements of teacher-centred and student-centred approaches. Such analysis would provide insights into the most effective strategies for different learning environments and different groups of students. For a more comprehensive understanding of student-centred approaches, it is important for future research to investigate students' views on their own responsibility in the learning process, the nature of assessments and the role of learning content.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Sabina Ograjšek, a PhD student, is a teaching assistant at the Faculty of Education, University of Maribor, Slovenia. She is responsible for teaching methodology to both undergraduate and postgraduate students. Her research interests include statistical and research methodology in education, the research-teaching nexus, and learner-centred approaches in higher education.

Milena Ivanuš Grmek, PhD, is a full professor of pedagogy and the Dean of the Faculty of Education at the University of Maribor, Slovenia. She is responsible for teaching didactics to both undergraduate and postgraduate students. Her main research areas encompass learning and teaching in various educational fields, curriculum changes, and higher education didactics.

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Contradictions and Challenges: University Teachers' Views on Performance Evaluation Models in Portugal and Spain

Tania F. Gómez Sánchez*[1], Maria Alfredo Moreira[2] and Begoña Rumbo Arcas[3]

Teacher performance evaluation is a key component of high performing quality assurance education systems. The main focus of the present paper is to examine how international trends in teacher evaluation policies determine teachers' working conditions in different higher education contexts. A comparative study was implemented at two public universities of Southern Europe (Portugal and Spain), with the aim of elucidating university teachers' perceptions regarding the current teacher evaluation model. To achieve this, we conducted 28 semi-structured interviews, employing a comparative approach in their design. The findings suggest that participants encounter discrepancies within the stated objectives of teacher performance evaluation in higher education. Such evaluation is perceived as an external imposition with a very poor democratic process, focusing mostly on the quantitative perspective and with uncertain consequences.

Keywords: accountability, teacher performance evaluation, views and perceptions, higher education

1 *Corresponding Author. Faculty of Education Sciences, University of A Coruña, Spain.
2 Faculty of Education, University of Minho, Braga, Portugal.
3 Faculty of Education Sciences, University of A Coruña, Spain.

Protislovja in izzivi: stališča univerzitetnih učiteljev do modelov ocenjevanja uspešnosti na Portugalskem in v Španiji

Tania F. Gómez Sánchez, Maria Alfredo Moreira in Begoña Rumbo Arcas

Ocenjevanje uspešnosti učiteljev je ključni element visokoučinkovitih izobraževalnih sistemov za zagotavljanje kakovosti. Glavni cilj tega prispevka je preučiti, kako mednarodni trendi v politikah ocenjevanja učiteljev določajo delovne pogoje učiteljev v različnih visokošolskih kontekstih. Primerjalna študija je bila izvedena na dveh javnih univerzah v južni Evropi (na Portugalskem in v Španiji) z namenom razjasniti, kako univerzitetni učitelji zaznavajo trenutni model ocenjevanja učiteljev. V ta namen smo izvedli 28 polstrukturiranih intervjujev, pri katerih smo uporabili primerjalni pristop. Ugotovitve kažejo, da se udeleženci srečujejo z neskladji v okviru zastavljenih ciljev ocenjevanja uspešnosti učiteljev v visokošolskem izobraževanju. Takšno ocenjevanje zaznavajo kot zunanjo prisilo z zelo slabim demokratičnim procesom, ki se osredinja predvsem na kvantitativni vidik in ima negotove posledice.

Ključne besede: odgovornost, ocenjevanje uspešnosti učiteljev, stališča in zaznave, visokošolsko izobraževanje

Introduction

Global patterns about what 'schooling, people and society should be' have been adopted and naturalised, assumed across different countries, with varying effects and implications that impact the functioning of education systems and society at large (Popkewitz, 2020, p. 162). On the other hand, the field of evaluation and assessment constitutes a powerful tool of a conservative and neoliberal agenda that has become hegemonic, set by transnational organisations like the OECD (Afonso, 2016; Torres Santomé, 2017). These transnational trends, present in current teacher performance evaluation (TPE) discourse and practice, combine to form the perfect storm. Policies for evaluating teacher performance in higher education have an international scope, with a real impact on the quality of teaching and the professional development of teachers (Ball, 2012). Moreover, as higher education institutions are relocating campuses all over the world, their policies acquire a supranational dimension in this global scenario.

Several transnational movements and reforms are at the root of the emergence of new tendencies and reforms oriented towards transferability, mobility and comparability in education, and the teaching profession is a central axis within these tendencies and reforms (Holloway et al., 2017; Smith, 2014). As a main goal of the reforms in education systems and the transformations required of teachers across all schooling levels, we find the enhancement of their quality equated with accountability (Sugrue & Solbrekke, 2017; Hursh & Wall, 2011; Lawrence, 2015; Meyer, 2012).

As a result, national procedures for quality assurance in higher education have functioned as TPE mechanisms, in line with a series of national regulations that promote accountability processes, albeit subjected to interpretation by each university within the scope of its autonomy. This scenario can favour the instrumentalisation of teaching, so that it can better respond to economic and productivity needs (Sugrue & Solbrekke, 2017; Fueyo, 2004; Gutmann, 1999; Simbürger & Neary, 2016).

Specifically, in the present higher education model in Europe, which promotes the standardisation of educational processes (Brøgger, 2016, 2018, 2019), several international organisations have signalled the importance of teacher performance evaluation for quality education. The European Commission (2012) evidences the need for a well-trained teaching force for dealing with the professional challenges faced in increasingly complex and uncertain contexts. The Organization for Cooperation and Economic Development (OECD, 2013, 2018) has developed a narrative of the quality of education systems that is intrinsically interweaved with the quality of their teaching force, and that draws its argumentative strength in the assumption that teaching quality strongly affects learning quality.

This correlation implicitly presupposes a need for the assessment of teacher performance, resulting in a worldwide increase in testing and the standardisation of accountability measures (Álvarez-López, 2019; Ball, 2003; Dorn & Ydesen, 2015; Smith, 2014). In this way, the objective of quality assurance through teacher accountability has been established, infusing teacher effectiveness with a neoliberal perspective (Ball, 2012, 2016; Saura & Bolívar, 2019; Saunders, 2010; Tight, 2019) that impacts the development of teachers' identity and working conditions (Fox, 2021; Gu & Levin, 2021; Hayes & Cheng, 2020; Shahjahan, 2020). Hence, initiatives have been set in motion to evaluate teaching through, for instance, student opinion surveys, whose outcomes may be questionable and have a less-than-expected impact on enhancing university quality (Osorio, 2020; Eiszler, 2002).

TPE lacks a clear answer to the question of whose interests are being served in higher education. Increasingly, university teachers feel a sense of loss of autonomy and control over their teaching and research practices, particularly when evaluations are linked to remuneration and academic promotion effects (Van Patten, 1995) that are overly dependent on quantification and datafication.

Authors like McCarty et al. (2016) and Poutanen (2023) use the term 'alienation' to describe how quantification is affecting the academic community. Academic alienation is a process that evokes feelings of frustration, fear, anxiety and cynicism among academics. How it is experienced differs between individuals, based on their position on the academic ladder and their approach to academic work.

Academia is influenced by intense competition and the internalisation of a neoliberal logic. This has impacted working conditions and can lead to a skewed perception of freedom and a strong affiliation with higher education institutions to access resources and legitimacy (McCarty et al., 2016; Poutanen, 2023). Quantification and impact metrics become instruments to assess productivity, leading to a constant pressure that compels academics to create a future academic identity (Arboledas-Lérida, 2022; Black et al., 2023). This process, referred to as 'becoming calculable', transforms academics into measurable and auditable resource units, with little consideration for long-term effects. Emotional pressures such as guilt and 'shame logics' are consequences of various types of limitations, such as bureaucracy, hiring procedures and time constraints, which determine and condition the autonomy of faculty in higher education (Shahjahan, 2020).

If evaluation is understood as a systematic process of collecting and analysing information to make a value judgment aimed at optimising a process (Shinkfield & Stufflebeam, 1995), its effectiveness must be accompanied by institutional improvement measures involving all stakeholders, as well as the resources and working conditions under which the institution operates (Stake et al., 2011). In the 1990s, some countries, such as Spain, initiated more comprehensive evaluative

systems, impacting not only faculty, but also research and service management. These systems had a dual purpose. On the one hand, they aimed to link the evaluation to concepts like autonomy in the internal management of each university; on the other, they were linked to accountability to society in line with the prevailing idea of accountability characterising current systems (Fernández & Orbe, 2021).

The new millennium began with the Bologna Declaration, which was pivotal for the European university (Symeonidis, 2018). Since then, stability or promotion in an academic career involves a dual selection filter: an external one through external accreditation agendas and an internal one set by each university. The intent behind the creation of evaluation and accreditation agendas is to enhance the quality of the higher education system by evaluating, certifying and accrediting qualifications, faculty and institutions, thus establishing an unprecedented bureaucratic framework (Fernández & Orbe, 2021; Van Patten, 1995).

In Portugal, the academic professional development and accountability of university teachers are distinguished by a specific teaching career status approved in 1979 and modified in 2009. In public institutions, there are teaching categories such as full professor, associate professor and assistant professor, while in private institutions, teaching staff must have qualifications equivalent to those in public universities. The evaluation of teaching performance in Portugal is regulated by a triennial system, covering research, teaching, management and university outreach, based on the principles of universality, flexibility, transparency and objectivity. All teachers must be assessed in this period of time, regardless of their professional category. Only 'Excellent' mentions in three consecutive assessment periods (nine years in total) result in progression in the remunerative category, and only full professors can evaluate others.

Regarding university teachers in Spain, there are distinctions between public and private contracts. In public institutions, there are two profiles: labour staff and civil servants. TPE is linked to incentives, which can involve remuneration, time compensation or both. It is conducted through various mechanisms encompassing different dimensions and aspects: 1) research: evaluation for 'sexenios' (six-year periods) can be requested by tenured and non-tenured university teaching staff. If the outcome is negative, it cannot be requested again within the same period. Although one can compete in subsequent years, negatively evaluated years are lost, unless one opts for a comprehensive assessment of the entire career trajectory; 2) teaching: assessment within the DOCENTIA programme[4]

4 The DOCENTIA programme was introduced with the aim of facilitating the evaluation of teaching in close coordination between the national agency, ANECA, and regional evaluation agencies. Its purpose is to support universities in designing their own mechanisms to manage the quality of university teaching activities and promote their development and recognition (ANECA, 2021).

applies to all teaching and research staff with teaching assignments in programme degrees, with specific teaching hour requirements for academic courses; 3) 'quinquenios' (five-year periods): requested by university teachers meeting specific conditions, such as years of service and maximum evaluation limits. Evaluation takes place over five academic years, with the possibility of a new evaluation two academic years after a negative assessment.

Additionally, it is possible to apply for regional supplements based on teaching, management and research work, with varying requirements including seniority and previous recognitions.

In Spain, the assessment process is conducted by distinct evaluators assigned for research, teaching and university management roles, respectively. Presently, the National Agency for Quality Assessment functions is the primary entity for conducting evaluations. This differs from Portugal, where the evaluating faculty is designated at the commencement of the assessment period, which extends from January to June in each new triennium. It is important to highlight the involvement of a commission and a coordination council in this procedure.

The present paper undertakes an analysis of TPE systems in Southern Europe, specifically in Portugal and Spain. The assumption is that a wider and holistic analysis of education policies of national systems requires the examination of the transnational and global spaces that impinge on them (Matarranz & Pérez, 2016; Valle, 2011; Kehm, 2010). In line with the work carried out by Holloway (2019), the main concern of this paper is to answer the following question: *How do supranational policies determine teachers' working conditions in different higher education contexts?*

The study presented in this paper focuses on the impact of TPE, as perceived by the subjects who experience this process, as well as its consequences, in order to determine the extent to which these processes are hindering the creation of fairer and more equitable evaluation scenarios in higher education. The objective was to comprehend the way in which university teachers perceive performativity and to explore its potential impact on their professional identity within distinct national contexts.

The specific research questions are as follows:

1. *How do university teachers perceive the TPE model (principles, assumptions, procedures etc.) in place?*
2. *What attributes define an optimal TPE model as perceived by university teachers in both countries?*
3. *What similarities can be observed in the university teachers' perceptions of TPE?*

Method

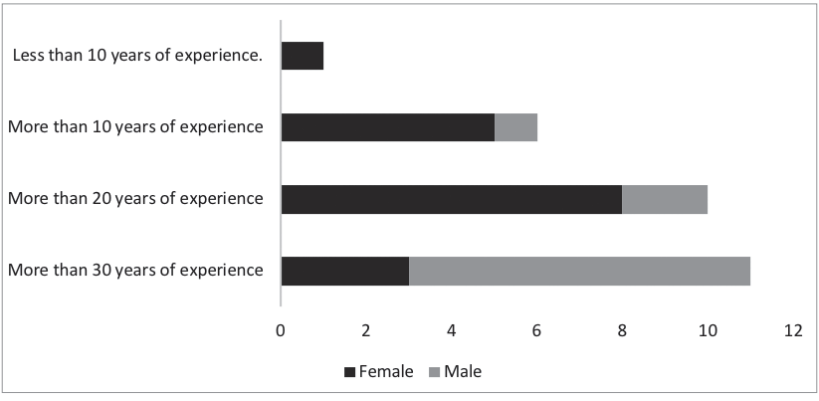
Participants

A convenience sampling method was employed, augmented by a snowballing approach (McMillan & Schumacher, 2010). A total of 41 teachers, specialised in the field of education and affiliated with two universities in northern Spain and Portugal, were contacted, and 28 agreed to participate in the study: 17 from Portugal and 11 from Spain. Of these teachers, 18 were women and 11 were men. Their areas of expertise pertained to eight different knowledge areas in the field of education: Developmental and Educational Psychology; Pedagogy and School Administration; Research and Diagnosis Methods in Education; Sociology; Specific Didactics: Language and Literacy, Maths, Science; Teacher Training and Supervision; and the Theory and History of Education.

The teachers had different levels of teaching experience and were in different phases of their career: the experience of the Portuguese participants ranged from 18 to 37 years, while the Spanish participants had between 8 and 40 years of experience (Graph 1).

Graph 1

Profile of the teaching faculty research participants by gender and university work experience



Instrument

The main data source was a semi-structured interview, the topics of which were sent to the participants beforehand: career path, knowledge area and pedagogical or administrative management responsibilities; initial questions about the participants' perspective on higher education policies and

practices; development questions on the process and outcomes of TPE; and a concluding question on doubts and observations the participants would like to put forward during the interview.

The interview process was complemented with an analysis of primary sources derived from the legislation governing university education, specifically concerning the regulation of TPE conducted within public universities, as well as European documents from Eurydice.

All of the interviews were recorded and transcribed. They were then subjected to thematic analysis and categorised using qualitative data analysis software (MAXQDA Analytics Pro 2020) (Braun & Clarke, 2006). Structural coding was applied in order to index major themes (Saldaña, 2016). From an ontological perspective, the data analysis was aligned with the nature of the research questions. Due to the exploratory character of the research, this analysis highlights the vision of the participants.

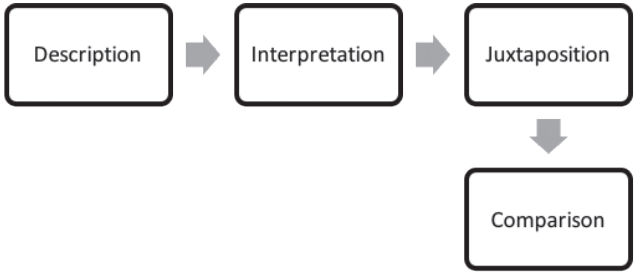
The presentation of the results, which focuses on the narratives of the participants, is accompanied by direct quotations extracted from the interviews. The aim is to exemplify their experiences and the meanings they attribute to them.

Research Design

The study builds on earlier work carried out in one national context (Gómez Sánchez & Moreira, 2020) and on a comparison of national policies regarding TPE (Gómez Sánchez et al., 2023). The present paper moves the conversation forward by examining teacher perceptions and experiences in both contexts, with reference to the comparative method, following its phases or steps (Figure 1).

Figure 1

Comparative approach steps



Source: Adick (2018)

The study is oriented towards describing, interpreting, juxtaposing and comparing education policies designed in global spaces and intended for all countries, without taking into account contextual cultural and policy factors. These policies are supported by international organisations, but are reconfigured and recomposed in particular settings. Southern Europe was chosen for this research due to the scarcity of studies focusing on this construct, in contrast to those using Northern Europe as a reference, or conducting North-South comparisons rather than South-South (Nóvoa, 2018). Southern Europe, configured by Greece, Italy, Portugal and Spain, has its own distinct character (Palomba & Cappa, 2018). Even though we locate our unit of analysis in a particular and idiosyncratic location in Europe, we attempt to understand how supranational policies impact locally.

Following Absor and Hairunas (2022), only a few studies have investigated faculty perceptions regarding the objectives and procedures of accreditation in higher education systems, particularly in the Anglophone world (US, UK, Australia and New Zealand) (Campillay, 2022; Poutanen, 2023). It is evident that the viewpoints of faculty members regarding accreditation are crucial, as they are closely involved in the execution of education policies (Tully, 2015).

Results

Perceptions of the Teacher Performance Evaluation Process

Regarding the first research question (*How do university teachers perceive the teacher performance evaluation model (principles, assumptions, procedures, etc.) in place?*), the teachers surveyed noted the high number of quantitative indicators that are collected regarding teaching and research. They stress the prevalence of a TPE model focused on outcomes that are mostly quantitative, bureaucratic and focused on measurable results, which leads to greater competitiveness among teachers, rather than collaboration. These results apply to both countries[5].

- *Yes, if there wasn't a culture of collaboration before, today there is even less collaboration. In the neoliberal system, where everyone looks out for themselves, it's about individualism, competition, survival of the fittest, supposedly of the most capable, etcetera, etcetera. It's a total war, isn't it? It's a soft war. No one gouges out eyes or cuts off noses or anything, no one physically harms each other, but it's a war that divides colleagues.* (Portugal-Interview 6).

5 All testimonials are translated by the authors from either the Portuguese or the Spanish language.

- *We're going backwards, into forms of teacher performance evaluation that respond to national agencies… all they want is to quantify things, in order to justify an increasing bureaucratisation of the teacher performance evaluation process* (Spain-Interview 9).

In Portugal, TPE is obligatory for all higher education teaching roles, which results in teachers viewing it as an excessively formal procedure. It is seen as a mandated legal requirement lacking credibility and ultimately resulting in disillusionment and demotivation among teachers.

- *I see it more as an attempt to respond to a legal requirement, rather than as an assessment of the quality of the actions taken. Quality that is measured with less than objective factors. Today we often fall into a bureaucratic process in response to a legal requirement, don't we?* (Portugal-Interview 2).
- *It's a legally imposed evaluation (...) the public university introduced this, we didn't have a say in whether we want it or not, nor did we have an evaluation according to our possibilities (...) I'm not against the evaluation, I'm against the criteria, as well as the objectives of a certain evaluation model. I'm not arguing that it's not important to evaluate; I'm saying that it's important to evaluate, but to do it more seriously* (Portugal-Interview 6).

In Spanish teachers' discourse, the quality assurance agencies have an overwhelming negative presence. They impose highly bureaucratic processes on institutions and people, and apply models with which teachers do not agree. The perception of the TPE process lacks significance for professional development and cannot be considered a procedure to enhance the overall quality of the university, as it fails to encourage cooperation and reflection. Despite being a voluntary process, it lacks credibility and leads to disillusionment and demotivation. Nonetheless, abstaining from it may hinder staff from assuming roles in research, supervision and examinations.

- *There's no conceptualisation of the meaning of teacher evaluation. In other words, teacher evaluation has remained a procedure that all universities have to do because there is an agency that asks for it* (Spain-Interview 3).
- *Well, the same thing, paperwork, that is, if the national agency is going to evaluate me or the regional agency is going to evaluate me, it's the same for both. Then there is the evaluation from the university through the DOCENTIA programme, which has a more or less similar format. Everyone asks me the same thing but in different ways, which in the end means doing the same thing three or four times, wasting time to state the same thing* (Spain-Interview 4).

The Attributes of an Optimal Teacher Performance Evaluation Model

Regarding their proposals for the prospective and orientation of TPE (the second research question), the participants in both countries advocate for a more comprehensive and collaborative evaluation model, mainly of a qualitative nature and with developmental purposes.

- *There has to be more than one way to do it, right? Egalitarian (...) For us to have a good teacher evaluation model it's also necessary to let the teacher reflect on his or her own practice. A teacher can't reflect on his or her own practice if he or she has 500 students, teaches eight different classes and well, I'm exaggerating, but he or she has a lot of classes and mentors 90 final undergraduate degree projects... that doesn't work* (Spain-Interview 2).
- *If it stimulates anything, it encourages the proliferation of products, whether they're written, events or other forms, including project coordination, recruitment and funding. I perceive a certain fragmentation, an attempt to cast the net as widely as possible, a certain productivity* (Portugal-Interview 11).

In this sense, one of the issues that seems to be more dubious is the nature of the attributions or competencies of academics. It is worth noting a comment made by a participant in the Spanish context:

- *One of the key issues we should reconsider and analyse is what teachers are today, what it means to be a teacher in today's world, and from there, look at how other types of training could be carried out, etc., without being conditioned by whether that forces hiring more or fewer faculty in this way or another (...) what they are measuring at the university is how many patents you have, how many products in the market, and then we go to a type of knowledge that values that* (Spain-Interview 9).

Similarities in Teacher Performance Evaluation

The results reveal a coinciding impact of performativity processes concerning teaching identity in both contexts (research question three). There are commonalities in its aims, ascribed meanings and impact, as demonstrated in an earlier study on Portugal (Gómez Sánchez & Moreira, 2020): *teacher assessment performance policies are associated with neoliberal and performative purposes, instead of developmental ones.*

The TPE process is not regarded as an evaluation aimed at improving teaching. Nor does it allow – based on the perspective of the participants in both Spain and Portugal – reflection on teaching practice. The markedly quantitative measurement and quantification processes are accompanied by

significant pressure and a strong sense of demand or loneliness that negatively impact working conditions.

- *I believe it is recognised that we have a competitive career, and there's a lot of competition from peers, which is very significant because, let's say, it doesn't stop affecting us. I have little doubt that the performance evaluation affects research centres, because it puts a lot of pressure on the people who assume the coordination – the research group's coordination, project coordination – and they end up putting a lot of pressure on their colleagues, because we know that if the centre is not doing well, that is very negative for us, it has tremendously negative consequences* (Portugal-Interview 11).
- *The negative part is that perhaps it can't be any better due to the circumstances. The high demand could also be seen as positive; the demand, but above all, I think it's the negative part that bothers people, the demand that could be a stimulus, it's the loneliness. I believe it's a job that, well, depending on the times when it affects you, can precisely be characterised by a bit of isolation if you're not part of groups, of research, or if you're not integrated into many groups. What could be a stimulus can turn into, well, a barrier* (Spain-Interview 5).

This is highly limited by the evaluation procedures themselves, such as completing an assessment form in Portugal. The procedures stand out as being very similar in both contexts. All of the surveyed teachers, whether espousing an evaluation paradigm in which excellence is prioritised or whether against evaluation altogether, consider that the procedures are inadequate, that they are time consuming and inaccurate:

- *The way I see the performance evaluation process at this university is as a more bureaucratic process of filling out documents. Very exhausting, very tiring. It's not very efficient* (Portugal-Interview 17).
- *I know that DOCENTIA exists, but I've never participated in it. Why? Well, because, in the end, it seems like a lot of time investment, perhaps in a very bureaucratic way, and I prefer to dedicate that time to teaching* (Spain-Interview 6).

In this regard, it is worth noting a lack of consensus among the teachers in Portugal and a lack of clarity regarding the purpose and goals of the performance evaluation process:

- *However, we also cannot overlook the fact that our Education Sciences community is built on the assertion of differences and similarities, with similarities being emphasised internally and differences externally. This*

dialectical affirmation entails an important dynamic that must be understood (Portugal-Interview 6).

- *Evaluation policies are also complex because there is a varied understanding of these policies. I'm in favour of an evaluation process, but the challenge lies in finding a process that's both comprehensive and suitable for the different professors working at the university* (Portugal-Interview 9).
- *(...) this is a process that began relatively recently at the university; we've only had two evaluation cycles so far, and we concluded the third evaluation cycle in 2018. When we question the purpose of this process, there's some difficulty in understanding its significance, and many teachers are asking themselves about it, because an evaluation process should be seen as an opportunity for professional development. The truth is, I don't have much faith in this process* (Portugal-Interview 10).

Ultimately, the participants in both countries reveal a distortion of university evaluation policies with the current measurement parameters and indicators, affecting their identity as university educators and, consequently, their professional development.

- *What happens is that, as it's currently formulated, there's a link between the evaluation and additional payment. Faculty tend to devalue the evaluation goals as all they want is the monetary bonus* (Spain-Interview 3).
- *And then, supposedly, the departments have to follow up on that (...) I don't know if the follow-up is actually done or not. What happens is, isn't it mandatory for those who undergo it? Consequently, in the end, I don't know the percentage, but only a few teachers undergo it, and the rest don't evaluate themselves either, which I think affects its quality* (Spain-Interview 4).
- *This isn't legally recognised, but everyday practices are creating a gap between research and teaching, and I don't know what the consequences of this will be, but it'll have a significant impact, because we'll mainly have a university divided between those who attract money because of research, where the money is, and teaching, which is undervalued. In the performance evaluation, there's a part that asks students what they think of our work, but from my point of view, that's not very reliable* (Portugal-Interview 7).

Discussion

This section facilitates a comparison between the two countries. The primary contribution of this work is to serve as a tool to reconsider teacher evaluation procedures, within the scope of university autonomy, as one of the cornerstones of the university's development, alongside the student body and the administrative support staff. It is worth reflecting on whether such developments are facilitating institutional improvement or, conversely, negatively impacting teachers' professional performance. Based on the results, it is evident that, in both countries, the accountability measures are negatively affecting the professional performance of teachers. This influence is particularly notable in the engineering of their curriculum, where efforts are made to align the presented merits with the requirements of evaluation.

With these results, we can affirm that there is a clear similarity in the perception of teachers in the area of education with regard to the processes of TPE and their influence on the professional identity of teachers. The regulatory tools to explicitly commodify academic work have been established based on measurement criteria and research productivity. This issue has been addressed in various studies conducted across geographically diverse locations at different times and stages of development, with all of these studies yielding similar conclusions (Black et al., 2023; Brøgger 2016; Campillay, 2022; Martin-Sardesai et al., 2016; Poutanen, 2023). Following Poutanen (2023) and McCarty et al. (2016), the logic of quantification is affecting the academic community and its labour conditions. Despite differences in the nature and process of TPE, an ideal evaluation model would be one that is more democratic and qualitative, that provides a genuine professional development model, that is more comprehensive, and that promotes collaboration among peers (Gómez & Moreira, 2020; Hargreaves & Fullan, 2012). However, in both Spain and Portugal, teachers also find it very difficult to propose an alternative model; they advance proposals, but are sceptical about their practical applicability.

Teachers do not feel that they are participating, or that they are part of a process geared towards enhancing the professional capital of the organisation in both countries (Ball, 2012, 2016; Hargreaves & Fullan, 2012), as most teachers experience tensions between their beliefs and representations (Ball, 2003). As shown by the interviews from both countries, it is clear that teachers do not believe in the evaluation model. They express concerns about the transparency and justice of the procedures and how they will impact their career. Moreover, teachers clearly express their disagreement with the neoliberal agenda of this model and the way its dynamics have affected their professional development.

We have evidence of how TPE mechanisms may hinder teacher professional development in the higher education institutions studied, but there is also evidence regarding the convergence of assessment policies that fuel a global, performative teacher evaluation model as a result of the presence of benchmarking mechanisms in the public sector (Hayes & Cheng, 2020; Williamson et al., 2020).

The policies for evaluating teacher performance in higher education have an impact on the quality of teaching and on teachers' professional development. There is therefore a need to analyse how the institutionalisation and professionalisation of academic research materialised in the European Higher Education Area (EHEA), and how the new forms of public management have determined the professionalisation and evaluation of teaching performance from the perspective of academics (Martin-Sardesai et al., 2016).

As described by Shinkfield and Stufflebeam (1995), the collection and analysis of information is needed to render a value judgment geared towards process optimisation. Since university teachers do not perceive the TPE as contributing to optimisation, it is essential to question whether it is a genuinely systematic process. If it is to be understood as such, its effectiveness should be complemented by institutional improvement measures involving all stakeholders within the academic community and focusing on the resources and working conditions in which the community operates (Stake et al., 2011).

The present study focused on the real consequences of TPE in teachers' subjectivities, showing how they perceive the aims and processes of the TPE models in place in national systems. The results show that these processes are hindering the creation of fairer and more equitable evaluation scenarios in higher education, as TPE is established as a quantifiable and accountability process, rather than as an instrument to improve higher education staff as teachers, or to improve the organisation as a whole.

Conclusion

The comparative approach serves to analyse the incidence of supranational policies in Southern Europe, following research that shows a lack of comparative studies of these countries (Nóvoa, 2018). It provides a first approximation to the impact of TPE and seeks alternatives based on the teachers' perceptions, as the hegemonic power of the supranational reforms carried out within the framework of the EHEA has been implanted invisibly (Brøgger, 2019). Working from the perspectives of teachers themselves and their perceptions opens up alternative possibilities to academic capitalism.

The present study highlights differences and similarities in the way teacher performance evaluation is perceived by teachers in two universities, despite their differing contexts and teaching experience. Although different teacher evaluation frameworks exist, the participants highlight the prevalence of a neoliberal, market-centric model (Ball, 2003, 2012) that prioritises economic and accountability objectives, sidelining professional growth. There is evidence of the presence of a supranational perspective that impacts the national TPE models in place. Notwithstanding the different national procedures for and outcomes of TPE, there is evidence of a trend of deskilling and deprofessionalisation of the teaching profession (Smith, 2014), which seems to match a trend in the domestication of the academic workforce that conforms to the status quo (Brøgger, 2019; Giroux, 2014).

Returning to our main research question (*How do supranational policies determine teachers' working conditions in different higher education contexts?*), examining the way teachers' work is evaluated provides clues to what really matters: teachers' teaching performance is aligned with neoliberal, market-oriented European educational and economic strategies. The present study evidences the fact that supranational policies have been accompanied by individualism and isolation of the academic community within the new managerialism agenda. In this context, irreconcilable thoughts and logics based on competitiveness – emphasising individualism, rivalry and fragmentation instead of solidarity, humanity and unity – have become ingrained. This facilitates the reinforcement of neoliberal ideologies and the principles of new public management. In Shahjahan's words (2020): "shame logics find fertile ground and manifest precisely because academics individualize 'struggles' and 'drowning' in light of temporal norms enforced by neoliberal performativity" (p. 790).

A system that generates this agenda and its operating logics encourages competitiveness within artificial collaboration cultures that do not allow for the generation of alternatives to existing imbalances and inequalities in the education system (Ball, 2012, 2016). In order to be truly democratic, the evaluation process must take into account teachers' voices and its impact on their professional identity (Fox, 2021), rather than fuelling feelings of alienation (McCarty et al., 2016; Poutanen, 2023).

More is needed to question the spaces for knowledge creation in this context. With these TPE models in place, to what extent does the academy have the freedom to generate knowledge in connection with the social reality (Martin-Sardesai, 2016)? To what extent are higher education teachers building their identity away from the boundaries established by their evaluation? Or are they subordinated to the neoliberal demands of a scientific publication

market? Following Santos (2014), it is necessary for science to have a global vision, based on epistemological diversity, heterogeneity and the free construction of knowledge in order to develop inclusive frameworks that are oriented towards the fight against social inequalities, which is a critical endeavour in the education field.

To conclude, recognising the limitations of the study associated with the sole focus of the analysis on the viewpoints of experts from specific knowledge domains within higher education institutions, it is vital to broaden the involvement of scholars from diverse fields. Moreover, it is crucial to integrate a gender perspective and consider how variations may emerge due to structural aspects in TPE, as well as through cultural and social class influences.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Tania F. Gómez Sánchez, PhD, is an assistant professor in the Department of Pedagogy and Didactics in the Faculty of Education Sciences at the University of A Coruña in Spain. She is the Vice-Dean for teaching practice at the Faculty of Educational Sciences and member of the Research Group on Educational Innovations. She has a PhD in higher education reforms and its consequences in study programmes. Her research interests lie in higher education policies, initial teacher training, particularly the practicum, and social justice education.

Maria Alfredo Moreira, PhD, is an associate professor in the field of foreign language didactics and teacher education on the Faculty of Education at University of Minho, Portugal. Her research interests include social justice (language) teacher education, human rights education, pedagogy for autonomy, action research in education, and pedagogical competences for teaching in higher education.

Begoña Rumbo Arcas, PhD, is a full-time university lecturer in the Department of Pedagogy and Didactics in the Faculty of Education Sciences at the University of A Coruña in Spain. Member of the Research Group on Educational Innovations, her main lines of research focus on teacher training in the context of higher education and adult education.

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The Effect of STEM Activities on the Academic Performance of Students With Reading Problems

Zeren Gacar[1], Hilal Aktamiş*[2] and Ahmet Bildiren[3]

This research aimed to increase the academic performance of fifth-grade secondary school students (aged 10 years) with reading problems in science classes. Using the single-subject ABA research model, the study was conducted one-on-one with three fifth-grade students with reading problems who were studying at a secondary school in a city centre in the western region of Turkey. The research was carried out over a four-week period, with two lesson hours per week. Semi-structured interviews were conducted with science teachers to develop the activities in the research and activity sheets were subsequently developed based on the interview findings. To determine academic performance in the science course, three group monitoring tests consisting of ten questions were prepared for the Sun, Earth and Moon unit outcomes and checklists added to the activity booklets were used. In addition, a STEM continuity survey was used to determine whether students with reading problems would like to receive education with STEM activities. The results obtained in the research showed that there was an increase in the academic performance of the students. In addition, all three students participating in the study stated that they would like to continue receiving education through STEM activities.

Keywords: STEM, reading problems, disability, special education

1 College of Ozel Dunya, Turkey.
2 *Corresponding Author. Aydın Adnan Menderes University, Turkey; hilalaktamis@gmail.com.
3 Faculty of Education, Aydın Adnan Menderes University, Turkey.

Vpliv dejavnosti STEM na učno uspešnost učencev z bralnimi težavami

Zeren Gacar, Hilal Aktamiş in Ahmet Bildiren

Namen te raziskave je bil povečati učno uspešnost učencev petega razreda osnovne šole (starih 10 let) z bralnimi težavami pri pouku naravoslovja. Z uporabo enosubjektnega raziskovalnega modela ABA je bila raziskava izvedena individualno s tremi učenci petega razreda z bralnimi težavami, ki so obiskovali osnovno šolo v središču mesta v zahodni regiji Turčije. Raziskava je potekala štiri tedne, in sicer z dvema šolskima urama tedensko. Z učitelji naravoslovja so bili opravljeni polstrukturirani intervjuji za pripravo dejavnosti v raziskavi, na podlagi ugotovitev intervjujev pa so bili nato pripravljeni listi z dejavnostmi. Za ugotavljanje učne uspešnosti pri pouku naravoslovja so bili za učne izide enote »Sonce, Zemlja in Luna« pripravljeni trije testi skupinskega spremljanja, sestavljeni iz desetih vprašanj, uporabljeni pa so bili tudi kontrolni seznami, dodani knjižicam z dejavnostmi. Uporabljena je bila tudi anketa o kontinuiteti STEM, s katero smo ugotavljali, ali bi se učenci z bralnimi težavami želeli izobraževati z dejavnostmi STEM. Izsledki, pridobljeni v raziskavi, so pokazali, da se je učna uspešnost učencev povečala. Poleg tega so vsi trije učenci, ki so sodelovali v raziskavi, izjavili, da si želijo nadaljevati izobraževanje z dejavnostmi STEM.

Ključne besede: STEM, bralne težave, motnje pri učenju, posebno izobraževanje

Introduction

The level of development and economic superiority of countries and the ability to ensure continuity in this regard are dependent on success in the field of education. The STEM approach has effects in the education systems of economically developed countries such as European countries and the United States (Kennedy & Odell, 2014). In order to obtain the scientific qualifications of developed countries and to keep up with the ever-increasing technological development, there is a need for an education approach based on the four main disciplines defined as STEM (science, technology, engineering and mathematics), which should be integrated into education systems and included in programmes (Raines, 2012). This includes the components of cyber physical systems, the internet of things, internet services and smart factories. The necessity of giving importance to STEM in education systems emerges from consideration of the contributions of individuals working in the fields of Industry 4.0, technology and innovation, which are based on internet systems, including modern automation systems, data exchange and production technologies. Education systems therefore need to focus on twenty-first century skills, producing individuals who can think creatively, come up with innovative ideas, have an entrepreneurial spirit, think critically and have advanced problem-solving skills, all of which can be achieved by gaining STEM skills (TUSIAD, 2014). STEM studies are gaining importance both nationally and internationally, with an increasing number of studies emerging on the subject (Hare, 2017; Christensen & Knezek, 2017; Holba, 2015; Guzey et al., 2016; Wade-Shepherd, 2016; Hwang & Taylor, 2016).

On examining the STEM literature, it can be seen that views on the integration of the STEM concept into education are generally in the form of the effects of STEM in teaching environments and on gifted students (Kertil & Gürel, 2016). In addition, there are studies on the effects of STEM education among girls (Holba, 2015). Only two national studies have been conducted in Turkey on the impact of STEM on students with learning difficulties (Biçer, 2019; Tosun, 2019), and there are few international studies (Ngubane-Mokiwa & Khoza, 2016; Israel et al., 2016; Lindsay & Hounsell, 2017). Among these studies are social projects including the concepts of learning disability, autism and special learning disabilities. The aim of the projects is to direct the individual to STEM careers with STEM activities. In the present study, unlike in the national literature, changes in the non-verbal cognitive performance of students who have difficulty in reading were examined, along with changes in their career interests (Drobnič, 2023) and motivations.

In terms of science education, the views of students with inclusive education and their teachers are generally included in national studies on learning disability (Dilber, 2017). In this context, it is clear that science teachers do not have enough information about how to implement lessons for students with learning disabilities. A study by Köse (2017) investigated teachers' opinions about education for inclusive students. The author concluded that this education was inadequate: although it should be executed in line with the IEP programmes prepared, teachers did not know how to teach these programmes. Studies including the opinions of teachers reveal that teachers working in this field are not satisfied with their own performance, with some of them stating that they do not know, or were unsure about, which method and material they should use in the classroom. Students who have learning difficulties in literacy and mathematics and have difficulties in adapting to their peers in the classroom may also experience difficulties in science (Dündar & Akyol, 2014). In the regulation published in 2018, the stated aims of special education services were to determine the needs of individuals, taking into account the aims and principles of the education system. This is expressed as ensuring that individuals achieve optimal performance by determining their interests, talents and competencies in various fields, and preparing them for the profession and social life they will choose in the future (MoNE, 2018). It can be seen that the purposes of special education services actually have similarities with career interest in STEM. Considering the effects of developing and changing technology on our daily lives, it is clear that there are changes in professions and that different professions related to STEM have emerged. Including STEM-related activities in special education may therefore result in individuals who need such education adopting a profession in STEM-related fields in the future.

The literature on students with learning disabilities and science education shows that research is generally conducted using the direct teaching method, as well as web-designed and virtual applications (Hopcan, 2017; Tezcan, 2012; Çikili, 2016), teaching methods that increase the interest and motivation of students with learning difficulties (Köse Biber, 2009). For students who have difficulties in learning, concrete activities involving touching, writing and participating in dialogues and discussions in the learning process can provide permanent learning. In the Diagnostic and Statistical Manual of Mental Disorders (2013, p. 67), learning disabilities are divided into three groups: a) reading disorders (dyslexia), b) written expression disorders (dysgraphia), and c) numerical (mathematics) disorders (dyscalculia). The international and national exams in which Turkey participates, such as PISA, TIMMS and ABIDE,[4]

4 ABIDE: Akademik Becerilerin İzlenmesi ve Değerlendirilmesi (Monitoring and Evaluation of Academic Skills)

test reading and reading comprehension, and Turkey's failure in these exams is generally related to these areas (OECD, 2015; ABIDE, 2019). In high school and university entrance exams, which evaluate students and guide them to a career choice, the questions are aimed at testing students' understanding of what they read, reinforcing the need to improve students' reading and reading comprehension skills. It is therefore important to address the reading problems of students with learning disabilities.

Reading problems can negatively affect students' academic success (Dündar & Akyol, 2014). It is thought that these inadequacies and deficiencies can be eliminated with different teaching methods for students with reading problems (Sakarneh, 2023). In this context, the aim of the present study is to determine the effect of STEM activities on the academic performance of students with reading problems and to examine their willingness to continue with STEM education.

Students with reading problems may have difficulty making sense of subjects requiring reading performance. For example, if the student has a reading problem, s/he cannot solve problems encountered in mathematics, thus causing a mathematical disorder. Likewise, most researchers agree that mathematical difficulties are often associated with problems in other domains, such as language difficulties, spatial difficulties and/or difficulties with memory (Dowker, 2009, p. 7). It is thought that STEM activities implemented with students with reading problems will also affect these students in science courses. In this context, the present research aims to reveal the effect of STEM activities on the academic performance of students with reading problems and their willingness to continue studying STEM activities. The research problem is: "Do STEM activities have an effect on the academic performance of students with reading problems?" The sub-problems of the research are:

(1) Is there a change in the academic performance of students with reading problems at the end of the education process with STEM activities?
(2) What is the level of willingness of students to study with STEM activities at the end of the education process with STEM activities?

Method

The ABA design, a single-subject research model, was used in the research. The single-subject research model is used when the participants in a research study group are evaluated by one subject or a small number of subjects. Single-subject designs experimentally examine the effect of an intervention. The ABA design is used when the aim is to create a time series, providing

stronger evidence of the causal effect of a situation (Christensen et al., 2014, p. 315). The dependent variables of the present study were determined as the general mental ability (academic performance) of the subjects in the science course, and the independent variable as the application of STEM activities.

Participants

In Turkey, students between the ages of 10 and 13 study in secondary schools. In this study, the research participants were three fifth-grade students, one girl and two boys aged ten years, with reading difficulties and studying at a randomly selected secondary school in a province in the Aegean region of Turkey. The selection criteria were that the students had not taken STEM activities before, that they had reading problems, that their participation was approved by the school they attended, and that they participated in the study voluntarily with the permission of their families. In addition, the guidance of the classroom teacher was also taken into account in the selection of the participants from the fifth-grade students at the school.

In determining which students should participate in the study, an interview was first conducted with the school administration, who referred the matter to the guidance service. One-on-one interviews were conducted with the students' science, mathematics, informatics and Turkish teachers, as well as with the classroom guidance teachers, with reference to the names of the students obtained from the guidance service and the psychological counsellor. In these interviews, the teachers were asked to evaluate the students' attendance, grades and behaviour in the course in general terms. Opinions about the students were obtained from their subject and class teachers. Based on the results of these interviews, the students in question were observed in their classrooms. During the observations, consideration was given to the students' behaviour in the classroom, whether they demanded the right to speak in the lesson, the difficulties they experienced in reading a text if they participated in the lesson, the writings they kept in their notebooks, their attention to the lesson and their academic success. It was observed that the students frequently made reading mistakes, read syllables incorrectly, overlooked some word affixes or added extra affixes while reading a text. It was therefore determined that they had difficulty in reading. When the students' writing notebooks were examined, it was observed that their writings were irregular, they often used lowercase letters at the beginning of sentences and uppercase and lowercase letters in the sentence, they used punctuation incorrectly or not at all, and numbers were reversed. It was also noted that the students paid attention if the teacher gave them the floor during the lesson, but otherwise did not engage with the lesson voluntarily. The

students exhibited behaviours such as being distracted during the lesson, playing with an eraser or pencil, talking to the person sitting next to them, and asking irrelevant questions. With regard to their academic achievements, only one of the students observed had achieved 70 percent in the mathematics course, and their overall average was below grade level. In the teacher interviews, it was learned that the students were indifferent to the lessons, had difficulty answering questions when asked, and were often sick and absent from school. The female students were quieter than the male students in the classroom and followed lessons more attentively. Three of the students were receiving one-on-one training in reading and writing in support training rooms, which provided an opportunity to observe these students in this context. A one-on-one interview was conducted with the students' teacher, who stated that the reading and writing of the three students was weak, which was confirmed by observations in the support training room. In the session observed, the students were given a text from their science textbook and asked to read it for 60 seconds. During this period, the student Ali had difficulty reading, especially syllables. He read slowly and with continuous breaks, reading 15 words in 60 seconds, 5 of which were wrong. The student Hakan managed to read 19 words in 60 seconds, with 5 wrong words, while Defne read 12 words in 60 seconds, with 2 wrong words. The students' fifth-grade peers normally read between 200 and 300 words per minute on average, and fewer than 200 per minute is considered slow reading (Akyol, 2011). The three students observed therefore read very slowly and inaccurately. In a study by Ergül (2012), it was stated that the reading performance of students with reading difficulties was 55.96 words per minute.

Instruments

The data collection tools used in the present research were: a) a monitoring test prepared by the researcher (to observe the pre-post monitoring measurements of the students and assess the development and change in their performance in the Earth and Universe topic), b) STEM activities prepared by the researcher, c) a checklist prepared by the researcher (after the STEM activities, a monitoring test was administered to the students at the end of each session; in each of the applied monitoring tests, equivalent questions measuring the same outcome were prepared in order to prevent the students from giving memorised answers), and d) a STEM continuity questionnaire prepared by the researcher.

Monitoring test and checklist

Tracking Test

A monitoring test was prepared by the researcher to determine the students' levels during the research process. Accordingly, a monitoring test was created for the 'Sun, Earth and Moon' unit in the Primary School Fifth-Grade Science and Technology Curriculum. Content validity was ensured by submitting the created test to expert opinion. An example of the questions in the monitoring test is:

Sample Question

(1) How do we place the balls below to form the Sun-Earth-Moon model in the correct order?

(A) Soccer ball-ball-ping pong ball

(B) Ping pong ball-soccer ball-ball

(C) Ball-ping pong ball-soccer ball

(D) Soccer ball-ping pong ball-ball

Control List

The World and Universe Checklist is used to show the level of knowledge the students are expected to exhibit and to make appropriate decisions about education and training by observing their strengths and weaknesses. Based on the performance level determination form developed by Köse Biber (2009) in his master's thesis, the checklist was developed for the present study and submitted to expert opinion. At the beginning of the activity, pre-measurements of the students were taken in order to assess the difference due to the intervention. The final measurements were taken at the end of the application in order to determine the change in the expected performance levels of the students after the intervention. In order to obtain numerical data for evaluation, the students were assigned 1 point for exhibiting each expected behaviour listed in the form, and 0 points for listed behaviours not exhibited. The checklist was applied at the end of each activity to measure the students' ability to remember the material and achieve the objectives of the activity. In addition, the students were required to answer at least 15% of the questions correctly in order to proceed to the new activity booklet (Billingsley, 2011). Examples of expected behaviour in the checklist are given below (Table 1).

Table 1
Examples of Expected Behaviour in the Checklist

	Purpose 1	1st week		2nd week		3rd week		4th week	
		First	Last	First	Last	First	Last	First	Last
1	What is the shape of the Sun? Can you draw it on a piece of paper?								
2	How big is the sun? Can you draw it on a piece of paper?								
3	What geometric structure does the Sun look like? Can you draw it on a piece of paper?								

STEM Continuity Questionnaire

After the students had completed the intervention with STEM activities, a questionnaire prepared by the researcher was applied to reveal the students' thoughts about the activities and assess their desire to continue their education with such activities after the intervention. Before applying the questionnaire, it was presented to three experts in science education to obtain their expert opinion. The questionnaire items were approved and no changes were made. The study by Gregg et al. (2016) was used as a reference in creating the survey items. There are 11 items in total, such as: "I think that the information I learned through the STEM activities will be useful in my daily life and later in my school life", "The STEM activities provided me with an opportunity to learn and succeed" and "I could choose appropriate tools and materials in the lesson with STEM activities". The maximum number of points that can be obtained in the survey is 44, and the minimum is 11.

Research Design

Preparation of the STEM Activities

The STEM activities were prepared after taking into consideration the opinions of teachers and a review of the relevant literature. The activities were adapted to the 5E lesson plan, which reflects the constructivist approach. The students were informed about what they would learn in the introductory part and their readiness was tested using story texts, animation and virtual reality (VR) glasses to attract their attention and motivate them, thus commencing the discovery phase. In the exploration part, various experiments and activities were presented to the students using Tolkido playing cards. This was followed by the explanation part, in which the students were expected to internalise and explain the concepts they had experienced in the discovery phase and share the

data they had obtained on the tablets they had been given, using video animations made by the teacher with the Scratch program. In the elaboration part, the students were expected to be able to synthesise what they had learned and transfer their findings to daily life, providing their own explanations through activities and video making. Taking into account STEM, the aim is to obtain a product based on a problem from daily life, which at this stage is similar to 5E. In the evaluation part, the students undertook self-evaluation with end-of-story questions, painting, poster preparation and product extraction. After the activities were prepared, they were presented to a panel for expert evaluation. The panel included five faculty members in the fields of science, mathematics, informatics and special education, four experts in the fields of science education, astronomy, physics and special education, and three science teachers. Booklets were prepared in line with the opinions received.

The Implementation Process

The implementations were carried out in a room with the guidance of the school administration. It was a large, well-lit room suitable for airing and without heating problems. The process of working one-on-one with each student took place on a square white table. The application was carried out with the students for four weeks, with eight sessions in total. During the implementation process, the students and researchers carried out one-on-one studies and care was taken to establish eye contact with the students. In order to measure the prior knowledge of the students, the follow-up questions on the topic Earth, Sun and Moon prepared by the researcher were applied to the students participating in the application. During the implementation process, the Earth and Universe Checklist was used to determine the performance levels before and after each activity. Based on the application, the checklist prepared by the researcher on the topic Earth, Sun and Moon was applied again in order to take the final measurements. The questions were read aloud by the researcher when the students had difficulty reading or showed signs of fatigue, and the student was asked to mark the answer by him/herself. The process with students who had reading problems was as follows:

In the initiation sessions, all of the students were asked one of the three groups of ten equivalent questions in succession, enabling starting level data to be collected over three sessions. After the starting level data were obtained, the three students involved in the research started learning with the STEM activities prepared for the Sun, Earth and Moon unit in fifth-grade science lessons in secondary school. At the end of each day, the questions on the activity sheet were asked and the number of correct answers was recorded on the Earth

and Universe Checklist. Complete and correct answers to the questions were marked as (+), while incorrect or approximate answers were marked as (-). Before moving on to the next activity sheet, the questions in the previous activity sheet were asked again. If the students answered 15% of the questions correctly, the next activity sheet was implemented. Teaching continued until a stable level of correct answers was reached, after which the application phase was terminated. After the completion of instruction, follow-up sessions were held to examine the extent to which the subjects retained what they had learned during instruction. The monitoring sessions were carried out by the practitioner two, five and seven weeks after the end of instruction.

The data obtained at the end of the sessions with regard to the three students were analysed in accordance with the ABA model. These data are shown in Figure 1. In addition, attendance at the course was determined by the STEM attendance questionnaire at the end of the application.

The initiation, application and follow-up data regarding the students Ali, Hakan and Defne are presented in graphic form in the findings according to the ABA model. The number of correct answers given by the students is given as a percentage.

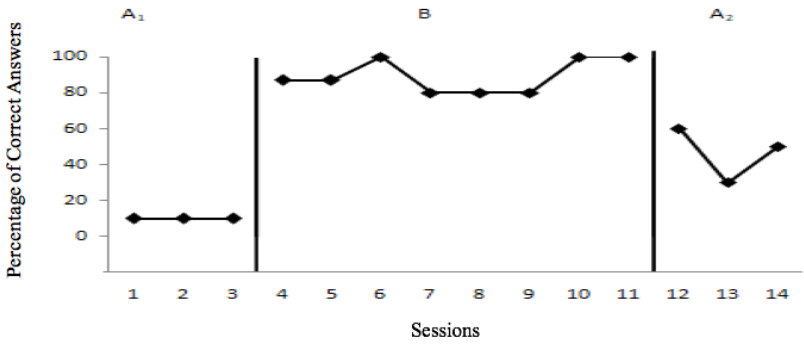
Results

The findings regarding the effect of STEM activities on the academic performance of students with reading difficulties in science lessons are presented below.

1.1 Findings Obtained From Teaching the First Student (Ali) With STEM Activities

Figure 1

Findings of Ali's STEM Activities and Teaching Sessions

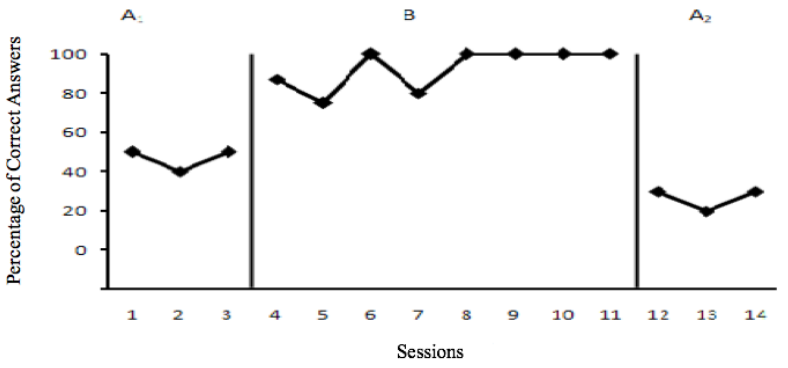


The starting level data for Ali were collected in three sessions, each comprising one group of 10 questions, making a total of 30 questions from the science topic Earth and Universe. Ali correctly answered 10% of the 10 questions in each of the three sessions. After the baseline data reached stability, the teaching sessions were commenced with STEM activities. The learning process took place in eight sessions. It was observed that the response percentages were 87% in the first session, 87% in the second session, 100% in the third session, 80% in the fourth session, 80% in the fifth session, 80% in the sixth session, 100% in the seventh session and 100% in the eighth session. The sessions were then terminated and the monitoring phase commenced. In the monitoring phase, three groups of 10 questions were asked, making a total of 30 questions. Ali correctly answered 60% of the questions in the first session of the monitoring phase, 30% in the second session, and 50% in the third session (Figure 1).

1.2 *Findings Obtained From Teaching the Second Student (Hakan) With STEM Activities*

Figure 2

Findings of Hakan's STEM Activities and Teaching Sessions

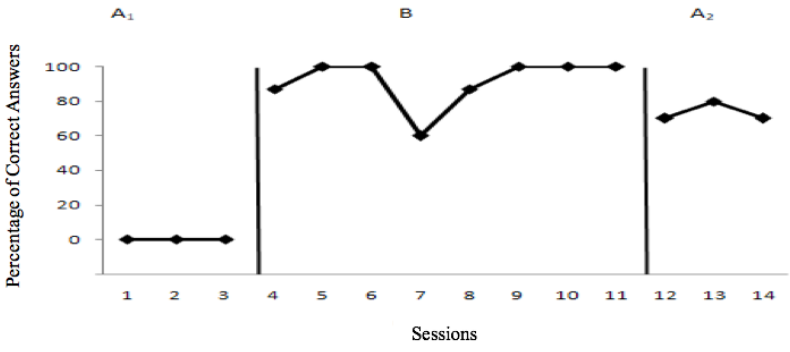


The starting level data for Hakan were collected in three sessions, each comprising one group of 10 questions, making a total of 30 questions from the science topic Earth and Universe. Hakan correctly answered 50% of the 10 questions in the first session, 30% in the second session, and 50% in the third session. After the baseline data reached stability, the teaching sessions were commenced with STEM activities. The learning process took place in eight sessions. It was observed that the response percentages were 87% in the first session, 75% in the second session, 100% in the third session, 80% in the fourth

session, 100% in the fifth session, 100% in the sixth session, 100% in the seventh session, 100% in the eighth session. The sessions were then terminated and the monitoring phase commenced. In the monitoring phase, three groups of 10 questions were asked, making a total of 30 questions. Hakan correctly answered 30% of the questions in the first session, 20% in the second session, and 30% in the third session (Figure 2).

1.3 Findings Obtained From Teaching the Third Student (Defne) With STEM Activities

Figure 3
Findings of Defne's STEM Activities and Teaching Sessions

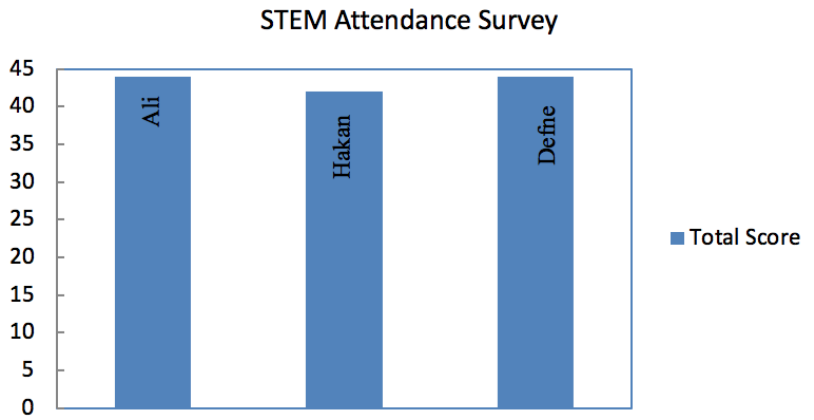


The starting level data for Defne were collected in three sessions, each comprising one group of 10 questions, making a total of 30 questions from the science topic Earth and Universe. Defne correctly answered 0% of the 10 questions in the first session, 0% in the second session, and 0% in the third session. After the baseline data reached stability, the teaching sessions were commenced with STEM activities. The learning process took place in eight sessions. It was observed that the response percentages were 87% in the first session, 100% in the second session, 100% in the third session, 60% in the fourth session, 87% in the fifth session, 100% in the sixth session, 100% in the seventh session, 100% in the eighth session. The sessions were then terminated and the monitoring phase commenced. In the monitoring phase, three groups of 10 questions were asked, making a total of 30 questions. Defne correctly answered 70% of the questions in the first session, 80% in the second session, and 70% in the third session (Figure 3).

1.4 Findings Obtained Regarding the Students' (Ali, Hakan, Defne) Desire to Continue Their Education With STEM Activities

Figure 4

Findings Regarding the Students' (Ali, Hakan, Defne) Desire to Continue their Education with STEM Activities



As Figure 4 shows, the students' total scores from the STEM continuity questionnaire range from 44 to 42.

Discussion and Conclusion

The research was conducted to determine the effects of STEM activities prepared for students with reading problems on their academic performance and their willingness to undertake STEM activities. Within the scope of the research, data were collected from three students with reading problems studying in a public school. According to the findings obtained in the research, it was concluded that the STEM activities developed were positive for the development of the three students with reading problems.

The research findings show that the proficiency of the first student, Ali, increased during the sessions in which STEM activities were applied, but decreased in the last monitoring sessions. The fact that this student was bored while answering the monitoring test questions but increased in proficiency in the following weeks of monitoring is thought to be due to his current mood and motivation. The evaluations made during and after the implementation of the activities of the students with reading problems are different from the

education and evaluations they receive in the classroom at school. In the later stages of the research, it was observed that the first student answered the questions without getting bored while reading and with a high level of motivation. The student did not undertake any activities during the application of the post-monitoring tests and participated in the sessions reluctantly, stating that he had difficulty in reading and therefore did not want to read. In the areas where he had difficulty in reading, the questions were read clearly to the student and answered accordingly. It is thought that the student's reluctance to read may have been because he was subjected to a monitoring test without doing any activity. While sitting at the table and working one-on-one, the student was not interested in the measurement tool and tended to ask irrelevant questions (e.g., Do you have children? Are you married? How old are you?). He got up, asked for a toilet break and wanted to play with the computer. In the interviews with the student's teachers, it was stated that the student was constantly moving during the lesson and had difficulty concentrating on the lesson, which may explain the student's decrease in motivation in the last sessions of the follow-up test. In the literature, it is stated that students with learning disabilities are typically either withdrawn or hyperactive (Wicks-Nelson & Israel, 2009).

When the performance values are examined, it can be seen that the student's performance increased by one point. Applying the test to the student without STEM activities may have negatively affected the increase in performance value. For this reason, STEM activities are thought to increase the performance of students with reading problems.

The second student, Hakan, achieved higher scores than the other two students included in the study when measuring the starting level. While it was observed that he achieved high scores at the end of the sessions and the education progressed positively, his results decreased in the last monitoring sessions. There were times when he did not follow the instructions given during the study and he complained that the session could not be held in the last week. This student performed well whenever he wanted. While using the computer, he wanted to go out of the planned activities and open other internet pages using the browser, and he did not want to follow the prescribed activity order. When asked to read the questions, he refused, using body language without giving any answer. In other words, he was completely closed. This is thought to have caused the recorded decrease in proficiency in the post-monitoring sessions, resulting in a lower level of success than the initial level. During the activities, the student stated that he did not like science lessons because it was difficult this year. It is thought that commencing the STEM activities with this attitude had an impact on the result.

When the change in the second student's performance is examined, it can be seen that there is approximately a 50% increase in the results. It is thought that the actual performance of the student was revealed during the STEM activities, but was not reflected during monitoring. Another possible explanation could be that the initial measurements were low due to environmental factors (such as the new environment, unfamiliarity, inability to concentrate).

The third student, Defne, started the sessions at a lower level than Ali and Hakan before starting the intervention training. When the initial and final sessions are examined, however, it can be said that the difference is positive. Defne has problems attending school and stated that she only came to practical classes, where knowledge was applied. This was confirmed by the school administration and teachers. The student's parents requested a one-on-one telephone interview, during which the researchers were asked to persuade the student to attend school. Based on the grades received from the school administration, it is clear that her level of success is low. Her older sister, who is studying at the same school, has a diagnosis of disability, and the guidance service had been requested to guide Defne in this regard. It is thought that the student will be successful if the education process is planned individually or if STEM activities are used in the classroom environment.

The evaluation of the student's performance indicated that the STEM activities made a difference, as she showed a positive development in the monitoring sessions, which is expected to make a difference in her academic performance in parallel with the monitoring sessions. Thus, the student's experience with STEM activities had a positive effect on her academic performance.

Genetic factors have a role in learning disabilities. Research on this subject has shown that genetic factors affect the development and maturation of the brain, and in this case, learning disabilities affect cognitive functions. In addition, environmental factors such as a poor financial situation and a lack of education are thought to have an impact, although it has been found that environmental factors affect reading skills more as a result of the combination with heredity. In a study conducted for this purpose, it was found that children who are described as poor have twice as many learning difficulties than children who are not described as poor (Child Trends Data Bank, 2014). In addition, it has been revealed that heredity is effective in reading ability and mathematics skills (Özçivit Asfuroğlu & Fidan, 2016).

The findings regarding the students' desire to continue their education with STEM activities show a strong desire among the students in this respect, including the student who does not want to continue school and only attends the courses during the application period. In a study conducted by Karasu (2019),

it was determined that students liked lessons with the activities prepared in accordance with the 5E learning model for students with learning disabilities.

In the present research, it was observed that the students had fun and their motivation increased during the process of their education with STEM activities. Furthermore, the performances of two of the students clearly improved. Education with STEM activities can be an opportunity for students with reading problems or learning disabilities in special education classification to demonstrate their performance. The participating students with reading problems learned by doing and experiencing in the process of applying the activities and they absorbed what they had learned. It is thought that providing a learning process with STEM activities in a simple and understandable way helps students to make sense of the subjects and concepts more easily. Reading trainings and individual teaching programmes in special education are designed for students who have reading problems, and STEM activities can be individualised for each student. The activities developed in the present study were prepared based on the general characteristics of students with reading problems, but the areas in which individual students have difficulty are different. It was found that, in designing activities, expressions must be simple, step by step and visual, as well as being practical. It is clear that the existing performance of students is revealed with STEM activities.

It can be concluded that the use of contemporary approaches in the education of students rather than the traditional approach is more effective academically (Demir, 2008; Kaplan & Tekinarslan, 2013; Çapraz, 2016).

Limitations of the Study

Although the present research is limited to three students with reading problems, it is clear that providing education with STEM activities can be used as a tool to increase students' performance. The fact that the STEM activities were not based on reading enabled the participating students to learn and practise more actively, although they had difficulty in the monitoring tests because they were based on reading. However, this is limited to the findings of the present study; the fact that applications and evaluations made for students with reading problems are not based on reading (they are interactive or computer-supported) may increase students' participation in courses. According to the results of the STEM continuity survey, the students stated that they wanted to continue their education with STEM activities. STEM activities or educational processes using different techniques for students with reading problems can be planned by teachers and academics. Since the present study is limited to students with reading problems, the application could be repeated with students

with different learning disabilities to examine its effect. In the present research, the application with students who have reading problems was limited to three sessions. In STEM-supported studies on students with reading problems, the process could be planned for a longer period of time, enabling its effect to be observed in more detail. The application was carried out one-on-one with each student in a special education classroom. In future studies, STEM activities could be implemented in classrooms by creating heterogeneous groups consisting of students with reading problems and their typically developing peers. The present study was limited only to the monitoring sessions before, during and after the application, but teachers and parents could also be interviewed about the students' post-implementation situations to examine whether any changes have occurred.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Zeren Gacar is a Science, Mind Games and Lego-Robotics Teacher at College of Ozel Dunya. She completed her master's degree in Science Education at Aydın Adnan Menderes University. In her research, she implemented STEM activities to be used in science courses for children with reading problems.

Hilal Aktamış, PhD, is a full professor in the field of science education at the Faculty of Education, University of Aydın Adnan Menderes University, Turkey. Her main areas of research are: STEM education, argumentation in science education, Scientific creativity, Astronomy education, Neuroscience in education.

Ahmet Bildiren, PhD, is an Associate Professor in the field of Special Education at the Faculty of Education at Aydın Adnan Menderes University. He has an undergraduate degree in Primary Education, a master's degree in Psychological Counseling and a doctoral degree in special education. He has a number of researches on gifted children.

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Food Safety Knowledge Among Tourism Faculty Undergraduates in Slovenia: Can Social Media Leverage Educational Gaps?

Marko Kukanja*[1] and Saša Planinc[2]

Education on food safety is vital, especially for future tourism managers undergoing training at universities. This study aims to assess the food safety knowledge of student seniors in the two Slovenian public tourism faculties, compare it with previous European and Southeast European studies, and explore the impact of social media use on food safety knowledge among tourism students. The research method utilised a questionnaire-based approach that surveyed three academic years of students until 2023/2024 from the two Slovenian public tourism faculties. Data analysis involved descriptive and bivariate statistics. The research reveals a notable scarcity of studies investigating students' food safety knowledge within the EU. The results indicate that the average food safety knowledge score among Slovenian tourism undergraduates was 52.6%, raising serious concerns as it is lower than such scores reported in similar studies outside the EU, in Serbia and in Turkey. Slovenian tourism undergraduates demonstrated low elementary knowledge about personal hygiene and the spread of foodborne diseases. Curricula analysis showed the absence of mandatory hygiene and food safety courses at Slovenian tourism faculties, and most students (64%) recognised the need for food safety knowledge education. The findings suggest that neither students' work experience in the hospitality industry during their studies (compulsory education at the workplace should be provided for all persons involved in food processing) nor following the food safety information on social media could compensate for the lack of formal education. This study underscores the urgency of introducing a comprehensive food safety curriculum in Slovenian tourism faculties to ensure future managers are equipped with essential food safety knowledge.

Keywords: food safety, knowledge, Slovenia, students, tourism faculty

1 *Corresponding Author. Faculty of Tourism Studies – Turistica, University of Primorska, Portorož, Slovenia; marko.kukanja@fts.upr.si.
2 Faculty of Tourism Studies – Turistica, University of Primorska, Portorož, Slovenia.

Poznavanje varnosti hrane med študenti turizma v Sloveniji: Ali lahko družbeni mediji zapolnijo izobraževalno vrzel?

Marko Kukanja in Saša Planinc

Izobraževanje o varnosti hrane je ključnega pomena, še posebej za prihodnje turistične managerje. Namen te raziskave je oceniti znanje o varnosti hrane med študenti turizma v Sloveniji, ga primerjati s prejšnjimi evropskimi in jugovzhodnoevropskimi študijami ter raziskati vpliv uporabe družbenih medijev na znanje o varnosti hrane. Raziskovalna metoda je temeljila na anketnem vprašalniku, raziskovalni vzorec pa je zajemal tri akademska leta študentov (do leta 2023/24) na dveh slovenskih turističnih fakultetah. Analiza podatkov je vključevala deskriptivno in bivariatno statistiko. Raziskava je razkrila pomanjkanje študij, ki preučujejo poznavanje o varnosti hrane med študenti turizma v EU. Izsledki kažejo, da je povprečna ocena znanja o varnosti hrane med slovenskimi študenti turizma znašala 52,6 %, kar vzbuja skrb, saj je nižja od ocen iz podobnih študij, izvedenih zunaj EU (v Srbiji in Turčiji). Slovenski študentje turizma so pokazali sorazmerno nizko znanje o osebni higieni in širjenju bolezni, povezanih s hrano. Analiza učnih načrtov je pokazala pomanjkanje študijskih vsebin s področij higiene in sanitacije ter varnosti hrane na slovenskih fakultetah, kljub temu pa je večina študentov (64 %) prepoznala potrebo po izobraževanju o varnosti hrane. Ugotovitve nakazujejo, da niti delovne izkušnje študentov v gostinstvu med študijem niti (neformalno) spremljanje informacij o varnosti hrane na družbenih medijih ne more nadomestiti pomanjkanja znanja. Ta študija poudarja smiselnost uvedbe obveznih učnih vsebin s področja varnosti hrane.

Ključne besede: varnost hrane, znanje, Slovenija, študentje, turizem

Introduction

The provision of safe and healthy food is an essential requirement for people, with food safety standing as a paramount concern. However, food safety risks may occur at every link of the supply chain, endangering consumers' lives and health and presenting a serious risk to public health. Within the tourism sector, ensuring the delivery of safe and nutritious food and beverage options is a defining characteristic of the industry.

Despite the highly developed food safety system in the European Union (EU), which is directed by the European Food Safety Agency (EFSA), a substantial number of food-borne illnesses still occur, primarily through poor handling practices. In 2022, there were 5,763 foodborne outbreaks within the EU, which represents a 44% increase compared with 2021 (EFSA, 2023). In 2022, salmonella was identified as one of the most common causes of foodborne outbreaks in the EU (EFSA, 2023).

Similarly, poor hygiene practices are a common problem in small food establishments in the Republic of Slovenia (Šašek et al., 2020), where employees often have neither the appropriate food education nor the appropriate food safety training (Jevšnik et al., 2021; Jevšnik et al., 2023). This is most obvious in the restaurant sector, as in practice, the responsibility for employee food safety education, though compulsory according to EU regulation (EU Parliament, Council of the EU, 2002), is often transferred to food business operators, which often tend to reduce operational costs by abandoning the concern for continuous training of its employees (Ovca et al., 2018). The risk of producing (un)safe food due to the human factor is thus greater for those employees who do not have adequate formal education (deregulation of hospitality professions in Slovenia was implemented in 2005) and participate in on-the-job training, which, due to the unregulated nature of the field is often carried out by incompetent persons without adequate professional and pedagogical knowledge (Jevšnik et al., 2008).

Other problems in practice are high employee turnover and a large proportion of poorly trained seasonal workforce. Food safety cannot be guaranteed only with advanced technology, a sound legal system, and a strict supervision regime. The supply of safe food depends on the responsible behaviour of all stakeholders involved in the food supply chain (Shen et al., 2021).

Tourism Education

Tourism education offered by higher educational institutions plays a critical role in training future hospitality professionals. Food safety education

requires training in safe food handling practices, personal hygiene, food preparation, and storage (Turnbull-Fortune & Badrie, 2014). This is important, as today's tourism students will be managers and educators of tomorrow, responsible for ensuring and promoting food safety practices among employees and consumers (Cumhur, 2021).

In this view, using the knowledge, attitude, and practice (KAP) model might aid in understanding the relationships among students' food safety knowledge (FSK), their attitudes, and preventive behaviour. Based on the KAP model, advocating knowledge is regarded as the key to whether an individual adopts preventive behaviours. Therefore, the more knowledge an individual has, the better preventive behaviours they will adopt (Luo et al., 2022). According to Zanin et al. (2021), improvement in FSK through targeted educational actions is also expected to positively influence the food safety culture (also referred to as the food safety climate) within society.

In this view, investigating students' FSK has become an interesting topic within academia. In reviewing the literature, a total of 25 studies investigating university students' FSK were identified over the past decade (since 2012) in major academic databases. Studies at various tertiary study programmes were performed at universities in Bangladesh (Islam et al., 2022); Greece (Lazou et al., 2012); Kuwait (Al-Khamees, 2007); Turkey (Akoğlu & Tuncer, 2017; Cumhur, 2021; Sanlier & Konaklioglu, 2012); Lebanon (Hassan & Dimassi, 2014); Ghana (Adzoyi & Honyenuga, 2014); Canada (Courtney et al., 2016; McIntyre et al., 2013); China (Cai et al., 2023); Pakistan (Abbas et al., 2019); Bulgaria (Stratev et al., 2017); Saudi Arabia (Al-Shabib et al., 2017); Malaysia (Ali et al., 2018); Sweden (Marklinder et al., 2020); Taiwan (Ko, 2018); Ethiopia (Azanaw et al., 2021); Jordan (Osaili et al., 2021); at a major American university (Green & Knechtges, 2015); at the University of Maine (Ferk et al., 2016); at Houston University (Yu et al., 2018); at the military academy in Serbia (Smigic et al., 2021); and at Serbian public universities (Smigic et al., 2020; Vuksanović et al., 2022). Interestingly, only four of the identified 25 studies (Akoğlu & Tuncer, 2017; Cumhur, 2021; Ko, 2018; Yu et al., 2018) included hospitality and tourism students. The analysis of the aforementioned studies has revealed that despite the geographical dispersion and differences in the applied methodological approaches, some generic conclusions can be drawn from reviewing the literature: 1) authors reported shortcomings in students' FSK; 2) students studying natural sciences had significantly higher FSK that their colleagues from social sciences; 3) the lowest FSK scores were related to food microbiology knowledge; and 4) food safety education was a significant predictor of student FSK. Furthermore, it was found that only three studies on tertiary students in the previous decade

(Lazou et al., 2012; Marklinder et al., 2020; Stratev et al., 2017) were performed in the EU member states (Bulgaria, Greece, and Sweden), while three studies were performed in the wider Southeast European (SEE) context (ex-Yugoslav states without Albania), specifically in the Republic of Serbia (Smigic et al., 2020, 2021; Vuksanović et al., 2022). Interestingly, none of the six EU and SEE studies specifically focused on tourism students. However, previous research conducted in Slovenia reported low levels of FSK among secondary school students (Ovca et al., 2014, 2018) and professional food handlers (Jevšnik et al., 2023).

To the best of our knowledge, no data relevant to FSK of EU hospitality and tourism students or Slovenian university undergraduates exists.

(Non)Institutional Sources of FSK

In addition to the importance of formal (institutional) education for FSK, previous studies (Burke et al., 2016; Lange et al., 2018) have also highlighted the importance of different (un)institutional sources of food safety information, such as family and friends, physicians, cooking shows and cookbooks, and the media. A study by Lange et al. (2018) revealed that mothers remain the most important sources of FSK among girls, while boys reported to trust more different heterogeneous sources such as the media and popular cooking shows. In this view, Maughan et al. (2017) highlighted the need to improve FSK communication among celebrity chefs who produce cooking shows. Similarly, Levine et al. (2017) evaluated food safety risk messages in popular cookbooks in the USA and found that most popular cookbook authors are risk amplifiers instead of FSK promoters.

In terms of social media, Giumetti and Kowalski (2022) defined social media as online communication networks that allow users to generate their content and engage in social interaction with large and small audiences. Typical social media platforms include Facebook, Instagram, Twitter, WhatsApp, Snapchat, TikTok, WeChat, and others. In terms of FSK, social media represent a set of internet-based learning platforms on which most young people socialise and informally learn on the internet (Mou & Lin, 2014). With the rapid introduction of social media in the previous two decades, distinctions among learning, entertainment, work, and leisure are becoming increasingly apparent. Accordingly, social media has also become a vital element of the (formal) teaching and learning process (Abbas et al., 2019). Several studies (Cai et al., 2023; Rasheed et al., 2020; Habes et al., 2020) confirmed that social media use positively influences students' knowledge sharing, innovation, and learning performance.

Social media has proved extremely efficient in sharing up-to-date health preventive information during the Covid-19 pandemic (Al-Dmour et al., 2020).

Specifically, scarce scientific evidence has been provided regarding the importance of social media in raising hygiene and FSK awareness among the tertiary student population. For example, a study by Yu et al. (2018) revealed that hospitality students have little interest in food safety courses. Nevertheless, researchers (Yu et al., 2018) have reported that students' motivation to learn food safety can be significantly increased by using electronic media devices and personal computers. Interestingly, a recent study (Cai et al., 2023) has shown that the Chinese platform WeChat has limited effects on improving FSK among Chinese university students.

Based on the presented theoretical background, this study aims to assess tourism undergraduates' FSK in the two Slovenian public tourism faculties and to explore the impact of social media use on FSK among tourism students. Specifically, the goals of this study are 1) to investigate FSK among final-year tourism undergraduates in Slovenia, 2) to compare Slovenian tourism senior undergraduates' FSK to that of tertiary students reported in previous EU and SEE research, and 3) to analyse tertiary tourism students' social media use and determine the importance of hygiene and food safety information provided on social media for students' FSK using a correlation analysis (see Table 3).

Building upon the established research objectives, our study endeavours to explore the following research questions (RQs):

RQ1: *What is the level of Slovenian tourism undergraduates' FSK in comparison to EU and SEE tertiary students' FSK?*

RQ2: *What is the importance of hygiene and food safety information provided on social media for tourism students' FSK?*

Hopefully, this research will reveal (potential) gaps in the FSK of senior tourism undergraduates in Slovenia, determine the importance of social media use for student FSK, and help to improve the formal (curriculum) and informal (social media use) food safety learning process.

Method

Participants

The number of analysed units (n) was 153, predominantly (76%) completed by female students. The average age of students was 20.3 years. Most students graduated from the secondary school of hospitality and tourism (41%), and 35% of them graduated from general secondary schools (in Slovene

gimnazija). Almost half of the students (47.1%) reported that they often or regularly work in the tourism industry while studying at the faculty. The average self-reported study grade was 7.8 on a ten-point scale.

While specific data on tertiary tourism students in Slovenia, classified according to the Klasius national system, is publicly unavailable, official statistics from the 2022/23 academic year indicate a total of 79,987 students enrolled in tertiary education across the country. Notably, 63.3% of these students were pursuing university education at the first-level study programs (Pečan, 2023). Our research findings align with the demographic profile of the broader student population in Slovenia. According to reports by Gril et al. (2022), the majority of students in Slovenia are under the age of 22, with women constituting the largest portion of the university student population (62.9%). Additionally, employment emerges as a crucial income source for students, with 44% relying on their earnings. Many students engage in substantial work commitments, with a majority working more than 20 hours per week alongside their studies.

Instrument

First, literature related to the field of the study was retrieved from major academic databases, including PubMed, Scopus, Web of Science, JSTOR, MEDLINE, ScienceDirect, and Emerald Insight. The search utilised keywords such as 'food safety knowledge', 'students', 'hygiene', 'tourism', 'hospitality', 'social media', 'knowledge', and 'food knowledge'. Initially, 86 articles were identified.

After narrowing the focus to scientific papers written in English from 2012 onwards, specifically examining the FSK of tertiary students (University or Faculty), 25 relevant articles were identified through the screening process. It's noteworthy that no articles written in Slovenian were found.

Among these 25 articles, only four were found to specifically investigate the FSK of hospitality students and six studies were conducted in the EU and SEE, as outlined in Table 2.

Next, the questionnaire was developed in three parts. To evaluate FSK and facilitate the comparison of results, 14 items from a validated instrument by Vuksanović et al. (Vuksanović et al., 2022) were introduced. FSK questions were multiple choice, and respondents were asked to indicate the right answer. In the second part, social media use was assessed using a nine-point scale (Jiang et al., 2021) ranging from 1 (never) to 9 (>90 min. per day). The list of social media meaningfully was adopted from the work of Giumetti and Kowalski (2022). The different hygiene and food safety information in media was measured with an open-ended question. The last part included demographic variables (five indicators).

Finally, to obtain a deeper insight into the food safety educational process, the undergraduate study programmes at the two Slovenian public tourism faculties, which are publicly available (Faculty of Tourism, 2021; Turistica.si, n.d.), were analysed.

Research Design

The study was focused on undergraduate students attending the last year of undergraduate (bachelor's degree) study programmes at two (out of two) academic institutions in Slovenia, specifically focused on providing tourism study programmes.

Primary data were gathered from students in their final years of study spanning three academic years. Employing a census approach due to unavailable public data on the exact number of third-year students enrolled at each faculty, an online questionnaire was disseminated to all participants attending lectures or compulsory exercises. This distribution was conducted following the explicit consent and supervision of the lecturers. Two researchers were involved in the data collection process.

Students were instructed to have either a mobile phone or laptop ready to access the survey. The survey link, created using 1KA software (an open-source application that enables services for online surveys), was then shared with students through a QR code. Participants were briefed on the study's objectives, and complete confidentiality was guaranteed. Engagement with the questionnaire was voluntary, and no additional credits or incentives were offered. The questionnaire's completion duration averaged around 12 minutes and underwent pilot testing by ten students. Out of the 178 questionnaires completed, 153 met the criteria for inclusion in the analysis. As all data was gathered in a centralised online database with a guarantee of complete anonymity, differences between students from both faculties were not specifically explored in this study.

Data analysis was performed using IBM SPSS Statistics 29. Descriptive statistics and bivariate analyses (Spearman's rank correlation coefficient (r_s), Chi-square test (x^2), and t-test (t)) were used. FSK scores presented dependent variables. Each multiple-choice answer had one correct answer that was assigned a score of one (1) point, while zero (0) points were assigned to wrong answers. The overall FSK score was the sum of correct responses for each student. The average time spent on social media was calculated as the average number of responses related to following different social media. For all statistical analyses, a significance level of 0.05 was used.

Results

Results reveal that the mean value (score) related to FSK was 52.6%. Detailed results for each FSK question are presented in Table 1. The results indicate the lowest FSK score for the question 'Which of these individuals should not prepare food for others?' (9.8%) and the highest for the question, 'Which of these individuals are least likely to get food poisoning?' (84.3 %). Interestingly, the majority of students (64%) participating in the study self-reported the need for additional hygiene and food safety education.

Table 1

Food safety knowledge (FSK) of Slovenian tourism senior undergraduates

FSK questions	Right answers (bolded)	FSK score in %
Which of the following scenarios for cleaning kitchen counters is the best?	**Soap, water, sanitiser/**sanitiser, water/brush, sanitiser/water, drying	52.3
While washing your hands, is it enough to rub them for (in sec.)?	10 / **20** / 30 / 40	32.7
Freezing kills harmful germs in food?	True / **False**	75.8
Which food is the least likely to cause food poisoning?	Baked potato left on the kitchen counter overnight / Leftover chicken eaten cold / **Chocolate cake left on the kitchen counter overnight** / Slices of pizza left on the counter overnight.	25.5
What is the recommended temperature for freezers (in °C)?	**-18** / 18 / 8 / 0 / -4	79.7
What is the recommended temp for fridges (in °C)?	-4 / **4** / 12 / 16	82.4
Which food does not need to be refrigerated?	Fruit salad / Open can of peas / **Raisins** / Chocolate pudding	68.0
How can a food be made safe if it has salmonella in it?	**Cook it well** / Freeze it for 3 days / not safe to eat / Don't know	43.1
For a burger to be safe to eat, does it need to be cooked until its internal temp. reaches (in °C)?	52 / **71** / 121 / 130	60.8
The micro-organism that causes most food-borne illnesses is...?	**Bacteria** / Viruses / Parasites / Fungi	62.7
Which of these individuals should not prepare food for others? A person with:	**Diarrhoea** / severe acne / HIV / a cold	9.8
Which foods do pregnant women, infants, and children need not avoid?	Soft cheeses / Raw or undercooked eggs / Undercooked hot dogs / **Canned vegetables**	35.3
Which of these individuals are least likely to get food poisoning?	Seniors / Pregnant women / **Teenagers** / Cancer patients	84.3
Most disease-causing bacteria can grow within a temp. The range between (in °C)?	**5-60** / 20-40 / 40-60 / 30-70	24.2
OVERALL SCORE		**52.6**

Following the study's second goal, the identified FSK score (52.6%) was compared to studies investigating tertiary students' FSK in the EU and SEE states. As can be seen from Table 2, none of the five identified EU and regional (SEE) studies specifically focused on tourism and hospitality students.

Table 2

The EU and SEE studies analysing tertiary students FSK (2012 onwards)

Authors	Country	Study population	*n*	FSK score in %
Lazou et al. (2012)	Greece (EU)	University students (general)	837	**37.0**
Stratev et al. (2017)	Bulgaria (EU)	Veterinary students	100	**85.0**
Marklinder et al. (2020)	Sweden (EU)	University students (general)	606	**63.4**
Smigic et al. (2020)	Serbia	University students (general)	240	**56.0**
Smigic et al. (2021)	Serbia	Military academy cadets	120	**50.5**
Vuksanović et al. (2022)	Serbia	University students (general)	930	**57.7**

The comparison of FSK scores provided the answer to RQ1. As can be seen from Tables 1 and 2, Slovenian tourism senior undergraduates have higher FSK than Greek and lower FSK than Serbian and Swedish university students. Interestingly, Slovenian tourism students' FSK is slightly higher than that of military academy cadets in Serbia. Unfortunately, previous studies presented in Table 2 applied similar, albeit slightly different, research questions. This hindered a more detailed comparison of research findings, apart from the comparison of the overall FSK scores across different studies (indicating the percentage of correct answers out of all possible correct answers), with the exception of the study by Vuksanović et al. (see also the Discussion section). Furthermore, an analysis of the study curriculum at Slovenian faculties (Faculty of Tourism, 2021; Turistica.si, n.d.) revealed the absence of a compulsory hygiene and food safety course. To obtain a deeper understanding of the importance of demographic characteristics for FSK, a statistical relationship between students' demographics (age, gender, study grade, and work experience) and FSK was calculated. The results indicate that the only positive correlation exists between gender and FSK ($x^2 = 7.696$; $df = 2$; $p = 0.021$), as male students scored better than females. All other demographics (including work experience in the tourism industry) proved to be insignificant for FSK. Therefore, it may be hypothesised that the observed gender gap in FSK is attributable to a lack of formal education (see also Discussion section).

In the last step, following the third goal of the study (RQ2), social media use was analysed based on a student self-report. Students indicated their usage of the different social media either on a nine-point Likert-type ordinal scale, representing time intervals ranging from less than 5 minutes to more than 1 hour per day, with an option indicating non-usage. Alternatively, they reported their weekly usage by selecting the frequency of usage, ranging from once, few, or several times per week, with a non-usage option. On average (M = 7.4), students follow different social media for 54 minutes per day (calculated to min. based on a nine-scale Likert-type ordinal scale). Most of them use Instagram and Video platforms (YouTube) (on average, app. 30 min. per day), interactive web pages (app. 10 min), Facebook (app. 10 min), and other media (e.g., TikTok). They use LinkedIn and Twitter the least (a few times per week).

To answer RQ2, statistical correlations (r_s) between the use of different social media and FSK were calculated (see Table 3). Interestingly, no statistically significant correlations ($p > 0.05$) were found.

Table 3

Correlations (r_s) between social media use and FSK

Social media use	FSK (No. of right answers)	
	r_s	Sig. (p)
Instagram	-0.142	0.082
YouTube	0.057	0.482
Interactive web pages	-0.030	0.713
Facebook	0.004	0.956
Twitter	-0.060	0.467
LinkedIn	-0.097	0.234

Nevertheless, almost half of the students (47.7%) self-reported following the different information about hygiene and food safety on social media in their free time. Based on an open-ended question, students reported the following information, with most answers relating to the practices of foodborne illness prevention, hygiene practices, allergen awareness, and expiration date awareness. Therefore, we additionally verified whether differences in FSK exist between both groups of students (users and followers vs. users and non-followers) using the t-test. Again, no significant differences were found (t = 0.142; df = 151; p = 0.887) between both groups of respondents.

Discussion

In the previous ten years, a range of research (see the Introductory chapter) has been conducted to assess university students' FSK. To the best of our knowledge, the present study is the first to offer insights into EU hospitality and tourism students' FSK and the Slovenian tertiary students' FSK. Generally, the results reveal (RQ1) a relatively low (52.6%) FSK of tourism senior undergraduates in Slovenia (see Table 2). Even though the identified results from our study were higher than those reported in Greece (see Table 2), Slovenian tourism undergraduates performed just slightly better than Serbian military cadets (Smigic et al., 2021) and significantly lower than Serbian (57.7%) (Vuksanović et al., 2022) and Swedish university students (63.4%) (Marklinder et al., 2020). Specifically, in comparison to tourism and hospitality undergraduates in Turkey, a recent study by Cumhur (2021) reported the average FSK score of Turkish tourism undergraduates ranging between 85.8 and 95.4%, which further worsens the result identified in our study.

Furthermore, in our study, the highest percentage of correct answers (84.3%) was related to 'the risk groups for food poisoning', while the lowest (9.8%) was associated with 'preparing food when being sick'. A comparison with Serbian students (Vuksanović et al., 2022) reveals that they scored highest (82.7%) in 'the best way of cleaning the kitchen counter'. Similarly, only 10.1% of students from the University of Novi Sad, like in Slovenia, were aware that a person with diarrhoea should not prepare food for others. The latter is of particular concern as Slovenian hospitality students, like their colleagues from Serbian universities, do not know the basics about preventing the spread of foodborne infections, such as the strict prohibition for people with diarrhoea from preparing food for others. Low knowledge was also identified for 'safe hand washing practices' (32.7 %) and knowledge related to preventing food poisoning with salmonella. To eliminate salmonella, proper heat treatment must be provided, and only 43.1% of Slovenian tourism senior undergraduates knew that, while 65.8% of students in Serbia provided the right answer (Vuksanović et al., 2022).

In addition to the identified lack of formal education provided at Slovenian tourism faculties, the identified gender differences in our study are also worrying. That is, similar to our findings, studies from underdeveloped countries (from the EU perspective), such as Ghana (Adzoyi & Honyenuga, 2014) and Lebanon (Hassan & Dimassi, 2014), which also reported low student FSK, provided evidence of differences in FSK scores between both genders. In contrast, in countries with significantly better results, such as Sweden (Marklinder

et al., 2020) and Serbia (Vuksanović et al., 2022), no gender differences were identified. A possible explanation for this could be that with proper educational interventions, the gender gap disappears.

Another alarming research finding relates to work experience in the tourism industry, which proved unimportant for student FSK. Specifically, in practice, the responsibility for employee food safety education is most often transferred to food providers (Ovca et al., 2014; EU Parliament, Council of the EU, 2002), and most students (47.1%) reported working during their studies. Nevertheless, no statistical correlations were identified between student work experience and their FSK, which seriously questions the quality of FSK information provided at the workplace. Unfortunately, this result corroborates previous findings of (Jevšnik et al., 2023), who reported major gaps in knowledge transfer among professional food handlers in Slovenia, which seriously questions the professionalism and didactical competences of food safety educators at the workplace, which proved to be of significant importance for health-related education (Hřivnová, 2021).

Regarding the (informal) food safety education through following the different social media (RQ2), no statistical correlations were found between actual FSK and social media use. Even though previous research provided evidence about the importance of social media for sharing hygiene and food safety information (Al-Dmour et al., 2020), we can conclude that, according to our research findings, informal following of food safety information in students' free time does not influence their FSK. Despite numerous instructions related to personal hygiene provided during the COVID-19 pandemic, we can assume that they did not significantly improve students' FSK on this matter. Nevertheless, students seem aware of their poor FSK, as 64% reported needing FSK education.

Finally, the results have shown that neither work experience in the tourism industry nor social media use can compensate for the lack of formal education provided by the faculty, which has been identified as a prerequisite for FSK in previous research findings (Cumhur, 2021; Marklinder et al., 2020). Accordingly, university students' education should prioritise increasing awareness, enhancing knowledge, and promoting proper practices to prevent foodborne diseases. Targeted food safety education programmes focusing on food safety management systems, such as Hazard Analysis Critical Control Point (HACCP) practices and procedures, should be incorporated into curricula. Given that undergraduates in tourism faculties lack practical food handling (cooking) lessons, compulsory practical training in food and beverage departments should be considered, as students might choose among several options (e.g.,

project work, selection of tourism sectors) for their practical training (Turistica.si, n.d.). Moreover, the targeted use of Information and Communication Technologies (ICT) can play a crucial role in delivering food safety educational content to students. Various formats, such as pictures, text, videos, and voice, can enhance the effectiveness of educational materials on FSK (Luo et al., 2020; Seow et al., 2022).

Conclusion

This research was performed at two Slovenian national and public tourism faculties. Three undergraduate academic years of tourism student seniors were investigated. The results indicate 1) a low level of tourism student FSK, 2) the absence of food safety education, and 3) that informal education through following food safety information on social media and work experience has no impact on student FSK. The identified low FSK score is the most worrying factor as students move into professional and managerial roles. Therefore, they will also need to educate employees on the importance of food safety behaviour, and they will be responsible for public food and beverage offerings. This research has also pointed out gender differences in FSK, which was the case of studies performed in (under)developed non-EU countries with low food safety awareness (Adzoyi & Honyenuga, 2014; Azanaw et al., 2021). The major contribution of this study reflects the urgency of introducing food safety education for tourism graduates. The university environment is an ideal place for education on food safety aimed at preventing diseases caused by incorrect food handling and low hygiene. While this research deals with the absence of elementary food safety ignorance, such as personal hygiene knowledge, prevention of the spread of foodborne illnesses, and knowledge about handling foods with salmonella among tourism undergraduates in an EU member state, the global society has to deal with much bigger concerns related to food safety, such as water scarcity, climate change, and the prevention of global disease outbreaks.

Study Limitations and Recommendations for Future Research

One limitation is that students acted as respondents, which may have affected the likability of responses. Despite this potential disadvantage, several studies thus far (e.g. Ferk et al., 2016; Smigic et al., 2021; Yu et al., 2018) have also investigated students of specific educational institutions (see the Introduction section). As there are several higher vocational colleges for catering and tourism in Slovenia, future studies should also include students from higher vocational institutions. In this view, it is also recommended that the sample size be

increased in future research by including students from neighbouring countries as students and workforce migrations (especially from the Balkan (ex-Yugoslav) states) are common in Slovenian tourism and higher education. To facilitate the benchmarking process for measuring students' FSK, it is recommended that a standardised methodology that adheres closely to international professional guidelines, such as those proposed by EFSA, be adopted. Despite our study's use of the same FSK research instrument as the study by Vuksanović et al. (2022), which was published in the official Journal of the Slovenian National Institute of Public Health (NIJZ), it is important to exercise additional caution. Specifically, in their guidelines, NIJZ, along with the World Health Organization (WHO), advises consumers to refrigerate foods at ≤ 5°C (World Health Organization, 2006; NIJZ, 2022; Ovca et al., 2021), as opposed to just (strictly) 4°C as proposed by Vuksanović et al. (2022). Greater care must also be taken with the internal temperatures of burgers. Vuksanović et al. (2022) generalised the types and temperatures of burgers, overlooking the fact that different types (e.g., beef and poultry) require distinct core temperatures for safe consumption. By doing so, regional competitions focusing on measuring students' FSK according to international professional guidelines (e.g., EFSA, WHO) could enhance student knowledge and food safety culture, thereby promoting international comparability of results. Furthermore, a comparison of FSK between tourism managers and graduates would also provide a deeper understanding of the problem, as today's students will act as future tourism managers, which might create a longitudinal 'spiral of not knowing'. The importance of targeted (formal) educational interventions that include state-of-the-art information technologies and artificial intelligence to improve FSK should also be investigated, preferably by using a standardised set of indicators.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Marko Kukanja, PhD, is an associate professor in the field of Business Organizational Sciences in Tourism at the Faculty of Tourism Studies – Turistica, University of Primorska, Slovenia. His main areas of research interest are Food and Beverage Management, Quality Management in Tourism, and Tourism Entrepreneurship.

Saša Planinc is a senior lecturer in the field of Business Organizational Sciences in Tourism at the Faculty of Tourism Studies – Turistica, University of Primorska, Slovenia. His main areas of research interest are Food and Beverage Management, Information and Communication Technologies in Tourism, and Methodology and Statistics in Tourism Research.

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Teaching English as a Foreign Language to Students With Disabilities in the Republic of Croatia

Ana Blažević Simić[1] and Anamaria Titijevski Vidović[2]

Since teaching English as a foreign language to students with disabilities has so far received little attention in national scientific discourse, which has mostly dealt just with specific subcategories of disabilities, the paper presents research conducted among Croatian primary and secondary teachers of English as a foreign language regarding their inclusive practice. Three research questions were formulated: What kind of education do teachers of English as a foreign language have about inclusion and students with disabilities? What are the experiences of these teachers in teaching students with disabilities? What kind of support do these teachers receive in the schools where they work? A descriptive research design was used, i.e., a qualitative study that included an in-depth interpretation of open-ended questions in a self-constructed and piloted questionnaire. The results show that 69.4% of the 98 participants did not have any formal education about inclusion or students with disabilities during their university studies, although 67.4% had attended a professional development programme on this topic. Most of the participants had experience in teaching students with specific learning difficulties (90.8%), and just 12.2% perceived themselves unready to work with students with disabilities. When they needed advice, the participants consulted school support team members, principals, class masters and experts or colleagues outside their school. However, only 15.3% of the teachers perceived the support they received as sufficient. The paper represents a solid starting point for further national research, e.g., on a specific category of students with disabilities or on English as a foreign language teachers working in schools with incomplete school support teams without education-rehabilitation experts.

Keywords: English as a foreign language, English as a foreign language teacher, school support team, students with disabilities

1 *Corresponding Author. Faculty of Humanities and Social Sciences, University of Zagreb, Croatia; ablazevi@ffzg.unizg.hr.
2 Faculty of Humanities and Social Sciences, University of Zagreb, Croatia.

Poučevanje angleščine kot tujega jezika za učence s posebnimi potrebami v Republiki Hrvaški

Ana Blažević Simić in Anamaria Titijevski Vidović

Ker je bilo poučevanje angleščine kot tujega jezika za učence z učnimi težavami do zdaj deležno le malo pozornosti v nacionalnem znanstvenem diskurzu, ki je večinoma obravnaval le posamezne podkategorije posebnih potreb, je v prispevku predstavljena raziskava, opravljena med hrvaškimi učitelji angleščine kot tujega jezika v osnovnih in srednjih šolah, o njihovi inkluzivni praksi. Oblikovana so bila naslednja raziskovalna vprašanja: Kakšno izobraževanje imajo učitelji angleščine kot tujega jezika o inkluziji in učencih s posebnimi potrebami? Kakšne so izkušnje teh učiteljev pri poučevanju učencev s posebnimi potrebami? Kakšno podporo prejemajo ti učitelji na šolah, na katerih delajo? Uporabljen je bil deskriptivni raziskovalni načrt, tj. kvalitativna študija, ki je vključevala poglobljeno razlago vprašanj odprtega tipa v samostojno sestavljenem in preizkušenem vprašalniku. Rezultati kažejo, da 69,4 % od 98 udeležencev med visokošolskim študijem ni imelo nobenega formalnega izobraževanja o inkluziji ali učencih s posebnimi potrebami, čeprav se jih je 67,4 % udeležilo programa strokovnega razvoja na to temo. Večina udeležencev je imela izkušnje s poučevanjem učencev s specifičnimi učnimi težavami (90,8 %) in le 12,2 % jih je menilo, da niso pripravljeni na delo z učenci s posebnimi potrebami. Kadar so potrebovali nasvet, so se udeleženci posvetovali s člani šolske podporne skupine, z ravnatelji, razredniki in s strokovnjaki ali kolegi zunaj šole. Le 15,3 % učiteljev je menilo, da je podpora, ki so jo prejeli, zadostna. Prispevek predstavlja dobro izhodišče za nadaljnje nacionalne raziskave, npr. o posameznih kategorijah učencev s posebnimi potrebami ali učiteljih angleščine kot tujega jezika, ki delajo na šolah z nepopolnimi šolskimi podpornimi skupinami brez strokovnjakov s področja izobraževanja – rehabilitacije.

Ključne besede: angleščina kot tuji jezik, učitelj angleščine kot tujega jezika, šolska podporna skupina, učenci s posebnimi potrebami

Introduction

Ever since UNESCO's World Declaration on Education for All (1990) and the Salamanca Statement (1994), we have witnessed a wave of theoretical and empirical research on the concept of inclusive education in both Croatian and international scientific discourse (e.g., Hernández-Torrano et al., 2022; Messiou, 2017; Nilholm & Göransson, 2017). Many authors, however, point out that today, almost thirty years later, we still fail to sufficiently ensure the ideal conditions that this fundamental paradigm of modern education implies (Bouillet & Bukvić, 2015; Florian, 2014; Kudek Mirošević & Bukvić, 2017; Nilholm, 2021). Portelli and Koneeny (2018) go further and claim that we need to regain the gradually eroded courage to address impediments and concerns when advocating for inclusivity in classrooms. In such contexts, it is extremely important that both policymakers and experts employed in the education system know how to recognise the weaknesses of education policies regarding inclusion. Teaching English as a foreign language (EFL) to students with disabilities (SWD) in Croatia is recognised as one of the weaker points of the education system when it comes to inclusion (e.g., Fišer & Dumančić, 2014; Martan, 2018; Benko & Martinović, 2021; Kałdonek-Crnjaković & Fišer, 2021a).

In this paper, SWD are defined in accordance with the Primary and Secondary School Education Act (Official Gazette, 2008a) and the Regulation on Primary and Secondary Education of Students with Developmental Disabilities (Official Gazette, 2015). The former divides SWD into three categories – students with developmental disabilities; students with difficulties in learning and behavioural or emotional problems; and students with disadvantages arising from educational, socioeconomic, cultural and linguistic factors – while the latter divides students with developmental disabilities into seven groups: vision impairments; hearing impairments; language/speech/voice communication impairments and specific learning difficulties (SLD); physical disabilities and health impairments; intellectual disabilities; behaviour and mental health disorders (ADHD included, A/N); and various impairments in psychophysical development.

In the Republic of Croatia, as in almost all European countries, English is learnt by most students during primary and secondary education (Eurydice, 2023). Although SWD are the focus of the current debate on the inclusiveness of the Croatian education system, the category of teaching EFL for SWD is seldom mentioned. The data show that SWD (students with a decision on participating in an appropriate education programme) currently make up 7.53% of the total student population (Ministry of Science and Education, 2022), yet

teaching EFL for SWD has received little attention. Moreover, English language teacher education programmes continue to devote little attention to developing teachers' competence regarding teaching SWD. For example, the number of available courses intended to enable future EFL teachers to gain the competences needed to teach SWD differs between study programmes, and such courses are generally minimally represented (Fišer & Dumančić, 2014; Fišer, 2019). Furthermore, most of these courses are elective and students can typically attend only one such course, usually during the second or third year of their undergraduate programme (Fišer, 2018; Martan, 2018).

Finally, it should be emphasised that primary schools in Croatia often have an incomplete school support team (SST), who should be the first to provide support and a basic form of professional development to (EFL) teachers. The National Pedagogical Standard of the Primary School Education System (Official Gazette, 2008b) states that SSTs should comprise a pedagogue, a psychologist, an education-rehabilitation expert (an educational rehabilitator, a speech therapist and a social pedagogue, A/N), a librarian and a health worker. According to national data from the beginning of the 2022/2023 school year, primary schools currently employ an average of 2.69 SST members (Državni zavod za statistiku Republike Hrvatske, 2023), normally a librarian, a pedagogue, and either a psychologist or an education-rehabilitation expert (Švegar et al., 2020). In this regard, it should be noted that librarians are the least qualified staff members to provide support to teachers in their direct work with SWD. In order to adequately support both teachers and SWD who learn EFL, all stakeholders involved in (language) learning, from teachers to SSTs, teacher trainers, researchers and policymakers, need to understand the extent to which the Croatian national education language policy adequately addresses – or fails to adequately address – the topic of teaching SWD.

Previous Research on the Role of the EFL Teacher in Inclusive Education

The key role of teacher preparation and professional development in ensuring inclusive education has been exhaustively researched, focusing mainly on general teacher training and teachers' beliefs and attitudes (e.g., Avramidis & Norwich, 2002; de Boer et al., 2011; Hay et al., 2001; Jordan et al., 2009; McHatton & McCray, 2007; Reinke & Moseley, 2002; Saloviita, 2020; Spratt & Florian, 2013; Zagona et al., 2017). Similar national research shows that Croatian teachers generally support inclusive education (Nikčević-Milković et al., 2019; Skočić Mihić et al., 2016; Žic Ralić et al., 2020), but perceive themselves as moderately or insufficiently competent for teaching SWD (Bouillet & Bukvić,

2015; Bouillet et al., 2017; Domović et al., 2017). Authors continually point out two fundamental reasons for this: the fact that higher education institutions for initial teacher education do not offer enough inclusive courses (Batarelo Kokić et al., 2010; Skočić Mihić, 2017) and that the teachers need more support (from SSTs, teaching assistants and specialised institutions) and further professional training (Nikčević-Milković et al., 2019; Kudek Mirošević & Jurčević Lozančić, 2014; Skočić Mihić, 2017).

Although, as Nijakowska (2019) points out, most foreign research focuses on language teachers or foreign languages in general, the present study is particularly concerned with findings about how teachers' self-confidence in the inclusive classroom is dependent on their knowledge of inclusive practices and underlying theoretical principles (Kahn-Horwitz, 2015; McCutchen et al., 2009). Studies that focus solely on EFL teachers deal mostly with specific subcategories of disabilities, particularly dyslexia and other SLD (Nijakowska et al., 2018; Nijakowska, 2019; Žero & Pižorn, 2022), but also deaf and hard-of-hearing students (Domagała-Zyśk & Podlewska, 2019), students who stutter (García-Pastor & Miller, 2019) or students with ADHD (Liontou, 2019). The same applies to the national context, where the few available studies mostly focus on dyslexia and subtopics such as the need for additional education (Fišer, 2018; Karamatić-Brčić & Viljac, 2018), the time-consuming creation of individual education plans (IEPs) and adaption of teaching materials (Benko & Martinović, 2021; Kałdonek-Crnjaković & Fišer, 2017; Kałdonek-Crnjaković & Fišer, 2021a; Kałdonek-Crnjaković & Fišer, 2021b), evaluation procedures, supplementary classes and the decrease in student motivation (Fišer, 2018; Fišer, 2020; Martan et al., 2017).

Since previous research highlights the three most common problems (insufficient education, teaching experience and support), the purpose of the present study is to expand the national research to the detected research gap, i.e., to shift the focus from teaching students with dyslexia to the entire population of SWD and to expand it to both primary and secondary EFL teachers. In order to analyse the state of inclusive practice from the perspective of EFL teachers in Croatia, three research questions were formulated:

1. What kind of education about inclusion and SWD do EFL teachers have?
2. What are their experiences of teaching SWD?
3. What kind of support do they receive in the schools where they work?

A descriptive research design was used, i.e., a qualitative study that included an in-depth interpretation of open-ended questions in a self-constructed and piloted questionnaire.

Method

Participants

After eliminating participants who had not completed their higher education in Croatia, 98 Croatian EFL teachers were included in the final sample. The youngest participant was 24 years old and the oldest was 62 years old. The mean age of the participants was 41.5 years. Therefore, we can say that the sample is dominated by participants in their most potent years of service, which should also bring a quality insight into everyday inclusive practice. The sample included 66 primary school teachers and 32 secondary school teachers. The teacher with the least experience had worked as an EFL teacher for three months, while the most experienced participant had worked as an EFL teacher for 39 years. The sample consisted of 95 female and 3 male EFL teachers. Of the participants, 75 had obtained their degree from the Faculty of Humanities and Social Sciences and 19 from the Faculty of Teacher Education, while 4 did not specify. Although not directly related to the participants, for the purposes of further analysis of the results, we also present data about the size and composition of the SST at the schools in which the participating EFL teachers work (Table 1), which is referenced in more detail within the discussion on the third research question.

Table 1

Profiles of members of school support teams

School support team	Percentage of employed SST members in participant's school (%)
Pedagogue	94.9
Librarian	80.6
Psychologist	53.1
Social pedagogue	17.3
Educational rehabilitator	15.3
Speech therapist	13.3

Instrument

Although qualitative questionnaires remain "a relatively novel and often invisible or side-lined method" (Braun et al., 2020, p. 641), we tried to craft a questionnaire consisting of as many open-ended questions as possible. These questions were presented in a fixed order (aligned with the close-ended questions) and the participants responded by typing responses in their own words rather than selecting from predetermined response options. In this way, we

tried to obtain subjective experiences, narratives, practices, positionings and discourses that were as rich as possible (Braun & Clarke, 2013). Additionally, the questionnaire was intended to capture what participants emphasise as important, since accessing language and terminology is frequently claimed as the main advantage of qualitative research (Braun et al., 2020). The data collection questionnaire was constructed and piloted (with minor changes after the feedback). It contained both closed-ended and open-ended questions to complement each other, whereby the focus was on the in-depth interpretation of the open-ended questions. In other words, we prioritised qualitative data that would offer nuanced, in-depth and hopefully new understandings of the research topic. The first part of the questionnaire consisted of closed-ended and open-ended questions. The closed-ended questions related to general information about age, gender, type of faculty, place of work, work experience and size/composition of the SST. These were followed by complementary questions of a closed-ended and open-ended type that examined the attendance of inclusive courses during higher education, concrete experience of teaching SWD, professional development in the field of inclusive education, counselling and support that teachers receive at school, and assessment of the inclusiveness of the participants' own teaching. The second part of the questionnaire contained only open-ended questions about the specific design of an inclusive environment in the participants' EFL teaching (how they adapt the content, materials, space, teaching methods, working time, knowledge testing, etc., using the example of the student disabilities they have encountered).

Research Design

The questionnaire was posted in April 2022 on various Croatian EFL teachers' Facebook groups and was available online (Google Forms) for two weeks.

The analytical process of the in-depth interpretation of the open-ended questions included familiarisation with the data and multiple readings of answers prior to commencing the analysis, followed by coding of the data set according to the analytical framework (the three formulated research questions: education, experience and support). This procedure was first carried out individually, after which both authors reviewed and discussed the inter-code reliability together and in several iterations, until they judged that they had adequately captured the flavour of the content of the answers (Brod et al., 2009).

Results

Participants' Education on Inclusion and SWD

As shown in Table 2, more than two thirds of the participants did not have any formal education about inclusion or SWD during their university studies. Nonetheless, 22.4% of them did attend a course during their higher education (e.g., language disorders, inclusive pedagogy, social pedagogy, blindness and second language acquisition, individual differences in language acquisition, psychology, didactics, etc.). However, most of these courses were, according to the respondents, of a general nature. Furthermore, 67.4% of the teachers had attended a professional development programme (at which the topics ranged from preconditions for successful inclusive education to specific categories of SWD such as ADHD, Down syndrome, learning difficulties, autism, dyslexia, phonological difficulties, etc.) in the form of workshops, lectures, conferences and webinars, but also as part of e-Schools projects.

Table 2

EFL teachers' education about inclusion and teaching SWD

Education about inclusion/SWD	Percentage of participants (%)
Attended a course	22.4
Did not attend a course	69.4
Did not remember if they attended a similar course	8.2
Attended a professional development programme	67.4
Did not attend a professional development programme	26.5
Did not remember if they attended a professional development programme on these topics	6.1
Attended a course and a professional development programme	14.3
Did not attend a course and a professional development programme	17.4

Since Article 115 of the Primary and Secondary School Education Act (Official Gazette, 2008a) stipulates teachers' right and obligation to continually attend professional development programmes, it is encouraging that more than two thirds of the participants had attended such a programme. However, there is still a cohort of 32 teachers (26 who had not attended such programmes and 6 who did not remember if they had attended), of which 17 had not attended a course or any kind of such professional development programmes. This means that 17.4% of the EFL teachers were not formally educated at all about inclusive

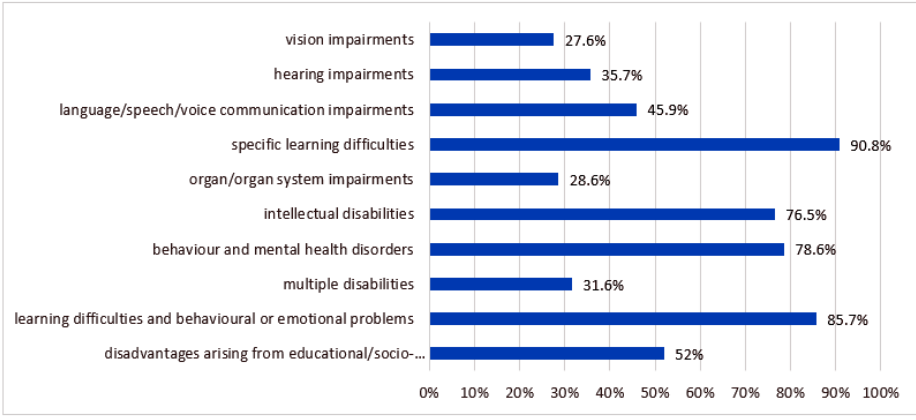
education, and that they are potentially left to handle the numerous everyday challenges of teaching SWD themselves.

Participants' Experiences in Teaching SWD

Figure 1 shows that the EFL teachers surveyed had experience in teaching students with different types of disabilities. They had the most experience in teaching students with specific learning difficulties (90.8%), students with difficulties in learning and behavioural or emotional problems (85.7%), and students with behaviour and mental health disorders (78.6%). Six of the teachers stated that they had experience in working with all of the enumerated disabilities, one teacher had only worked with students with SLD, while all of the others had experience in working with students with at least two different disabilities.

Figure 1

Participants experiences in teaching SWD (types of disabilities)



When asked about what kind of difficulty they feel most prepared to teach, the participants were most confident with SLD (44.9%) and intellectual disabilities (14.3%). On the other hand, when asked about which category of students represented the greatest difficulty in providing inclusive EFL teaching, they stated autism (22.4%), intellectual disabilities (19.3%) and behaviour disorders (12.2%). Interestingly, just 12.2% of the teachers perceived themselves as unready to work with SWD. When asked whether they perceive their teaching as inclusive, almost half of the participants (40.8%) were not sure whether their teaching was inclusive. Such results are not surprising given that previous research has shown that teachers do not have adequate knowledge of either the characteristics of SWD or the relevant teaching methods.

In the next three questions, the teachers were asked what adjustments they make for each of the three categories of SWD. The answers were very detailed. For students with developmental disabilities (e.g., vision impairments, SLD, intellectual disabilities, ADHD), the respondents stated additional time, adjusting/reducing the content, visual representation, using the mother tongue, seating arrangement, assessing knowledge based on the student's preference (oral/written), etc. For the second category (students with difficulties in learning, students with behavioural or emotional problems) and the third category of SWD (students with disadvantages arising from educational, socioeconomic, cultural and linguistic factors) the teachers mentioned adjustments that include having conversations with the student, creating a pleasant atmosphere in the classroom, expressing approval, having other students help, seating arrangement, individual approach, additional time, encouraging the student, etc.

The most in-depth and authentic answers were given to the question regarding the biggest problems when including SWD in EFL classes. At the time the study was conducted, this question had not been researched in Croatia and therefore represents the most valuable part of the findings. A few examples of the problems the participating teachers emphasised most frequently are given below:

> "Very often the student does nothing in class, or even disrupts the class, which is explained (by parents and assistants) by external factors (fatigue, moodiness, etc.) and which makes me powerless. A student with Down who has refused to communicate with me for two years and hides as soon as I approach. Lack of direct and clear communication with parents and SST. We are left to fend for ourselves, to evaluate and decide for ourselves, and there will never be a final answer about what is good and how it should be done." (P10)

> "Many SWD in the class (in one class as many as four with content adaptations, two of them with assistants, and two more with individualisation), which is why I don't manage to devote enough time to anyone in class – neither to the students with difficulties, nor to the rest of the class. The adapted programme includes students who absolutely cannot master the programme even with adaptation (I have a student in the fifth grade who is linguistically at the level of the second grade!) Also, I do not feel qualified to work with children with multiple disabilities and LMR, and more severe behavioural difficulties. I think that the educational rehabilitation programme at university takes five years for a

> reason, and it educates experts who have the knowledge and abilities to work with students with difficulties, unlike me, a self-educated teacher who improvises." (P76)

> "Apart from the students, I don't have feedback on whether it's good. The fact that the student must have all positive grades, and sometimes it happens that the student simply refuses to work, the pressure of the SST and the belittling of work and effort, the large material expenses borne by the teacher himself." (P91)

There were, however, many more respondents who focused on challenges such as the reluctance of SWD to get involved due to a lack of self-confidence and poor prior knowledge (P58); lack of adequate materials for work and the very time-consuming process of making and adapting everything by themselves (P53); students' lack of motivation since they are used to low expectations (P56); cooperation with teaching assistants (P92); the role of remedial classes (P95); other students' complaints because some tasks were adapted for SWD (P3); awareness of the knowledge gap of students with intellectual disabilities who become resigned over time (P14); disruption of classes by SWD to the extent that class performance is impossible (P49); appropriate assessment (P63); not enough training (P68), etc.

Participants' Experiences of the Support They Receive in Their Schools

In order to differentiate between the support that schools as educational institutions show towards inclusive education and the support that teachers receive from SSTs, the surveyed teachers were first asked whether and how their school supports inclusive education. For most of the EFL teachers, the concept of inclusive schools was equated with SWD enrolment. Some respondents mentioned individualisation and adapted IEPs and stated that the SST reacts to the teacher's suggestions and sends the children for treatment, that cooperation between parents and teachers is nurtured, and that seminars and workshops about SWD are organised, but many of the teachers also used syntagms such as administrational orders, formality, criteria absence or in theory when describing the situation in more detail or within their own limits.

The next question analysed whom the teachers consulted about SWD. It could be said that the number of statements that mentioned a specific member of the SST (32 a pedagogue, 15 a psychologist, 11 an educational rehabilitator, 8 a social pedagogue, 3 a speech therapist) is in accordance with the statistics about the size/members of the SST in the teachers' schools. However, it is possible that

an SST member was present, but that the teachers did not decide to ask him/her for help, or they judged that they would need another SST member profile more. A further 12 of the respondents stated that they consulted the SST in general, 2 consulted the principal, 11 a class master, 31 an expert or a colleague outside their school, and 1 parents. Interestingly, 9 of the teachers stated they did not consult anyone, even though (as we checked) they have SST members available in the school, mainly pedagogues and librarians. It is also interesting that only 15.3% of the teachers answered that the information they received from the person they contacted was adequate, with the rest answering either that it was inadequate or they were not sure.

Discussion

We will first look in more detail at RQ1, i.e., questions about the previous education of the EFL teachers about inclusion and SWD, which relate to courses on inclusion they had attended during higher education and additional professional development programmes on the topic of teaching SWD. First, since the courses listed by the participants included general courses, the extent to which the topic of teaching SWD was addressed in these courses remains questionable. Second, the finding that more than two-thirds of the respondents had attended at most one course, which is in accordance with previous research presented in the theoretical part (Fišer, 2019; Kahn-Horwitz, 2015; Martan, 2018; McCutchen et al., 2009), certainly highlights an issue that the national education policy and study programmes must seriously and promptly consider.

Since previous research on the role EFL teachers in inclusive education has shown that EFL teachers need additional training to successfully deal with the challenges of teaching SWD (Benko & Martinović, 2021; Jordan et al., 2009; Karamatić-Brčić & Viljac, 2018) and that they are willing to undergo further education (Fišer, 2018; Martan et al., 2017; Reinke & Moseley, 2002; Spratt & Florian, 2013), we did not expect to find that only 14.3% of the participants had attended both a course and a professional development programme about inclusion or SWD. The data can be partially explained by the cohort of older participants, who received almost no training on inclusion during their studies. However, the mean age of the participants was 41.49 years, so they were in their most potent professional period. Although we cannot talk about data correlation in qualitative research, we can make certain observations about the relationship between age, career courses and narratives (Wilhelmy et al., 2022). The aforementioned result is even more worrying if we consider what the opinion and experience of a group of older teachers would be. Such analyses of

separate age groups require additional, future research. Since the newest legal document, the National Plan for Equalisation of Opportunities for Persons with Disabilities 2021–2027 (Official Gazette, 2021), sets the improvement of the education of SWD and the professional development of teachers in developing IEPs as priorities, we assume that also this cohort will soon have an opportunity to attend appropriate training. As Nijakowska stated (2019), attending programmes of this kind could raise teachers' awareness and develop positive attitudes, particularly regarding ways of adapting teaching materials and evaluation procedures, but such programmes can also affect teacher confidence.

Regarding RQ2, which concerned teachers' experiences with teaching SWD, it was no surprise that the respondents felt most prepared to work with children with SLD, since most of them had experience with students with precisely this type of difficulty. The result that needs to be discussed is the fact that teachers' opinions on intellectual disabilities diverge. Although the EFL teachers surveyed felt most prepared to work with children with SLD, they also regarded such work as the most challenging teaching experience (the two other disabilities mentioned as the most difficult in terms of providing inclusive teaching were autism and behaviour difficulties). It would be interesting to ask additional questions in this regard, as we can only assume that more dramatic anecdotal experiences lie in the background. Moreover, the respondents extensively elaborated the competences required by an EFL teacher for teaching SWD. The fact that several of the participants freely demonstrated their misunderstanding of inclusive education (calling it a joke, impossible, wizardry, etc.) does not surprise us. However, one would assume that the legal framework, which has been in place for almost two decades, would change the mindset of education workers, and that the belief that education is considered a non-negotiable human right and not an act of goodwill would be accepted. On the other hand, obeying the law does not remove the right to point out its flaws. If we exclude such pessimistic responses, we can speak about unexpectedly elaborated and well-structured answers. This leads us to conclude that the teachers are fully aware of their responsibility and their inappropriate education, and that they are consequently dissatisfied with the way inclusion is carried out, which is in accordance with the several aforementioned national and foreign research studies (Avramidis & Norwich, 2002; de Boer et al., 2011; Bouillet, 2013; Kranjčec Mlinarić et al., 2016). Such detailed answers reaffirm the fact that teachers are unfairly labelled as those who "hamper the development of quality inclusive education" (Bouillet, 2019).

In addressing RQ3, which concerns the kind of support teachers receive in their schools, we must first reflect on the size of SSTs and irregularities of

their member profiles, which is in accordance with the previously presented results of Švegar et al. (2020). In addition, statements in which teachers expressed doubts about the competence of the two most represented SST members (pedagogue and librarian) clearly point to the following well-known and ubiquitous national problem: although the law states that a pedagogue, among numerous other inclusive assignments, should identify and monitor SWD as well as advising and helping teachers (Official Gazette, 2014), the professional impact of pedagogues is limited by their own education (their study programmes typically have three inclusive courses, often elective) and the specific context of their educational institution (e.g., the number of students, the number of SWD, the profile of other SST members, insufficiently coordinated and available cooperation with external specialised institutions and mobile expert teams, etc.). Future research should therefore focus solely on EFL teachers working in schools with incomplete teams without education-rehabilitation experts in order to obtain more precise answers regarding why teachers perceive the support from SST as insufficient, what their mutual expectations are, and what they see as more coordinated help from the system in general. Although there were many valuable statements, we conclude the discussion with one that best represents the aforementioned situation:

> "It all boils down to the good will of the teachers, because due to the lack of people in the SST (we only have a pedagogue, despite 736 students in the school), the teachers cannot do everything by themselves and are mostly left to their own devices after being informed that they have a student with difficulties in the class." (P87)

Conclusion

As inclusion laws in many European countries require the least restrictive educational settings for SWD, many such students, as Nijakowska (2014) points out, find themselves in regular educational settings where they attend EFL classes. In practice, however, neither inclusion laws nor language-learning policies specifically address the language learning needs of SWD. As Portelli and Koneeny (2018) note, in such circumstances one should regain the gradually eroded courage to address impediments and concerns, while advocating for inclusivity in classrooms. The present paper outlines a range of impediments and concerns of EFL teachers. Our results confirm the findings of previous research that teachers are not sufficiently formally educated during their studies, while also highlighting the lack of attendance of professional training. Speaking

about experiences and competences in teaching SWD, the participants' extensively elaborated answers reveal an awareness of their responsibility, but also a dissatisfaction with the way inclusion is implemented (especially in relation to the support of the SST). Such results demonstrate that the teachers are aware and motivated, but also sufficiently courageous to address these impediments. At the same time, the (non)fulfilment of the expected inclusive assignments of the EFL teachers regarding SWD, the (dis)satisfaction with their implementation level or the (poor) quality of the achieved results can easily be explained by the teachers' insufficient education or by shifting responsibility to various other 'parties' (the system, SST, teachers or parents). However, a series of in-depth, authentic answers testify to the EFL teachers' awareness and their tendency to build their own sense of responsibility for transformative action in their own specific professional environment. Some of these environments seem disappointing, some inspiring, but they all have the same underlying need for stronger support and coordination of the system.

The present study is not without limitations. It was conducted on an appropriate, unequal sample of 66 primary and 32 secondary EFL teachers. Conducting broader research with equal samples of participants is recommended, but also within the same level of the education system. Some limitations also arose due to the absence of a question about the total number of students in the participants' school, which meant that observations about the appropriate size of the SST and the profile of its members could not be made. The last limitation we would like to mention is that some of the questions about adjustments were simply too broad, or perhaps not entirely suitable, even for a qualitative questionnaire.

Despite its limitations, the present study could be a solid starting point for further research on a specific category of SWD in order to formulate more specific guidelines. As already mentioned, focusing solely on EFL teachers working in schools with incomplete teams without education-rehabilitation experts would also be beneficial. In addition, future lines of research may also consider additional techniques of an exploratory research design, such as interviews or focus groups, since there was no possibility to set additional questions, especially when the teachers' opinions diverged (e.g., readiness to work with students with intellectual disabilities). The techniques of a correlational research design could also be considered. Based primarily on a mostly qualitative questionnaire, the present research effectively filled the identified research gap and laid solid groundwork for the aforementioned possible directions.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Ana Blažević Simić, PhD, is an assistant professor at the Department of Pedagogy, Faculty of Humanities and Social Sciences at the University of Zagreb. Her main research and teaching interests include inclusive pedagogy and education of students with disabilities.

Anamaria Titijevski Vidović, MA, completed the university graduate double major study programme in English language and literature with emphasis on teaching and pedagogy at the University of Zagreb, Faculty of Humanities and social sciences. She is currently employed as a school support team member – a pedagogue, in a primary school.

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Personal Practical Knowledge and Effective Teaching: A Study of Turkish Teachers of English as a Foreign Language

Fadime Yalcin Arslan*[1] and Ayse Nur Erdem[2]

The main aim of this study was to investigate English as a foreign language (EFL) teachers' personal practical knowledge concerning their perceptions of effective teaching. The qualitative descriptive study employed semi-structured interviews and observations to investigate the impact of personal practical knowledge on the perceptions of teaching effectiveness among English as a foreign language teachers in Turkey. Seven English as a foreign language teachers currently teaching in three public education institutions participated in the study. Inductive content analysis was used to analyse the findings, which revealed that the characteristics of effective teaching, as practised by teachers in their settings, included classroom dynamics, students' motivation, teacher engagement, assessment and engagement strategies in education, and an empowering environment for active learning.

Keywords: professional development, teacher perception, teacher knowledge

1 *Corresponding Author. Gaziantep University, Turkey; fyalcin80@gmail.com.
2 Ministry of National Education, Turkey.

Osebno praktično znanje in učinkovito poučevanje: študija turških učiteljev, ki poučujejo angleščino kot tuji jezik

Fadime Yalcin Arslan in Ayse Nur Erdem

Glavni cilj te študije je bil raziskati osebno praktično znanje učiteljev angleščine kot tujega jezika v povezavi z njihovimi zaznavami učinkovitega poučevanja. V tej kvalitativni deskriptivni študiji so bili uporabljeni polstrukturirani intervjuji in opazovanja, da bi raziskali vpliv osebnega praktičnega znanja na zaznave učinkovitosti poučevanja med učitelji angleščine kot tujega jezika v Turčiji. V študiji je sodelovalo sedem učiteljev angleščine kot tujega jezika, ki trenutno poučujejo v treh javnih izobraževalnih ustanovah. Za analizo ugotovitev je bila uporabljena induktivna analiza vsebine, ki je pokazala, da značilnosti učinkovitega poučevanja, kot ga učitelji izvajajo v svojih okoljih, vključujejo: dinamiko v razredu, motivacijo učencev, zavzetost učiteljev, strategije ocenjevanja in vključevanja v izobraževanje ter spodbudno okolje za aktivno učenje.

Ključne besede: profesionalni razvoj, zaznave učiteljev, znanje učiteljev

Introduction

Education is a process that develops with the coordination of many components, one of the most important of which is undoubtedly teachers. Richards (1996) states that teachers deal with more issues than curricular content while teaching; they have to implement their personal theories reflecting their understanding and belief regarding how teaching gets better and how they can achieve improvement. Similarly, Borg (2011) considers teachers as "active, thinking decision makers" (p. 218).

Verloop et al. (2001) state that "…an understanding of teacher knowledge may be useful to improve teacher education and to make educational innovations more successful" (p. 441). In order to effectively develop teacher education programmes, it is imperative to grasp the multifaceted nature of teacher knowledge. Scholars often refer to teacher knowledge using various terms, such as personal knowledge (Connelly & Clandinin, 1985; Verloop et al., 2001), practical knowledge (Elbaz, 1991), and personal practical knowledge (Clandinin, 1985).

Teacher knowledge encompasses different dimensions. For instance, Fenstermacher (1994) categorises teacher knowledge into two main types: practical knowledge and formal knowledge. Practical knowledge stems from teachers' hands-on experience in the classroom, while formal knowledge refers to theoretical understanding acquired through academic study, research and professional development activities.

Another framework, proposed by Cochran-Smith and Lytle (1999), divides a teacher's experiential learning journey into three distinct stages: knowledge for practice, knowledge in practice and knowledge of practice. Knowledge for practice entails the acquisition of the theoretical frameworks, pedagogical approaches and foundational concepts essential for effective teaching. It serves as the groundwork for teachers' instructional endeavours. Knowledge in practice, on the other hand, evolves through the daily experiences of teaching. Teachers glean insights, strategies and techniques from their classroom interactions, as well as through collaboration with colleagues during in-service activities. This practical knowledge is dynamic and is constantly refined through reflective practice and ongoing professional development. The accumulation of knowledge for practice and knowledge in practice leads to the development of knowledge of practice, which represents a deep understanding of the intricacies of teaching gained through years of experience and reflective engagement. Teachers possess a rich repertoire of strategies, a nuanced understanding of student needs and the ability to adapt flexibly to diverse instructional contexts.

The focal point of the present study lies within the realm of teacher knowledge, with a specific emphasis on personal practical knowledge (PPK). While the terms "teacher knowledge" and "personal practical knowledge" are sometimes used interchangeably, it is crucial to recognise the nuanced distinctions between them. Teacher knowledge serves as a broad umbrella term, encompassing a wide array of understanding and expertise within the teaching profession. In contrast, personal practical knowledge delves deeper into the individualised experiences and contextual insights that shape a teacher's practice. As articulated by Clandinin (1989), PPK embodies the accumulated wisdom derived from an educator's prior experiences, while acknowledging the contextual nature of this knowledge.

Within the broader landscape of education, teacher knowledge has been a subject of inquiry across various disciplines and perspectives, from chemistry education (Vinko et al., 2020; Wei & Liu, 2018) to physical education (Ennis, 1994; Ferry et al., 2022), mathematics teaching (Carpenter et al., 1996), science teaching (Aydemir, 2014; Ngaisah et al., 2018), preschool teaching (Horppu & Ikonen-Varila, 2004) and higher education (Sandoff et al., 2018; Süzer, 2007). Moreover, scholars have explored the multifaceted dimensions of teacher knowledge from different perspectives, such as professional development (Cladera et al., 2021; Van Velzen et al., 2012) and classroom management (Tartwijk et al., 2009). These investigations aim to underscore the pivotal role of teacher knowledge in shaping pedagogical practices, informing curriculum development and enhancing student learning outcomes.

Among the various facets of teacher knowledge, practical knowledge, enriched by experiential learning, has garnered significant attention over the past three decades (Clandinin, 1985; Golombek, 1998). Studies focusing on preservice teaching have underscored the importance of sharing PPK with aspiring educators, highlighting its instrumental role in mentoring and teacher education initiatives (Faez, 2011; Kodele & Mesl, 2024; Mukeredzi & Manwa, 2019; Zanting et al., 1998). By imparting insights gleaned from real-world classroom experiences, educators contribute to the professional growth and development of novice teachers, fostering a rich ecosystem of knowledge exchange within the educational landscape.

PPK has also been studied in different fields, such as science teaching (Duffee & Aikenhead, 1992; Lee & Chang, 2010; Yıldırım, 2008; Yurdatapan & Savaş, 2014), primary mathematics instruction (Carpenter et al., 1996), preschool teaching (Horppu & Ikonen-Varila, 2004; Leijen et al., 2015) and foreign language teaching (Kaymakamoglu, 2019; Süzer, 2007; Swart et al., 2017). Perspectives such as reading comprehension in a foreign language have been

investigated by determining the importance of contextual issues through PPK (Rahmany et al., 2014), while classroom management in multicultural classes has been examined by focusing on the terms of respect, rapport and a positive class atmosphere through rules (Tartwijk et al., 2009). The way teachers build their PPK is also investigated in many studies (Arıogul, 2007; Leijen et al., 2015; Ruohotie-Lyhty, 2011; Sandoff et al., 2018). The main concept of these studies has been to identify how teachers build their practical knowledge by specifying probable links between teachers' PPK and their perception of the environment.

The overarching objective of the present study is to contribute to the ongoing research exploring the intricate nature of teachers' PPK and its potential role in elucidating various dimensions of effective teaching practices. In order to achieve this aim, it is important to examine effective teaching, as teachers' perceptions of effectiveness serve as a crucial lens through which their PPK can be comprehended. For instance, Brown and Atkins (2002) emphasise the importance of aligning assessments of teaching effectiveness with individual teaching goals. This underscores the subjectivity inherent in defining effectiveness, as teaching objectives can vary significantly between educators based on their instructional philosophies, contextual factors and student populations. Consequently, teachers' and learners' conceptions of effective teaching may evolve in response to changing educational objectives and priorities.

Research has also revealed the dynamic and context-dependent nature of perceptions of effective teaching. Demiroz and Yesilyurt (2015) conducted a study examining English as a foreign language (EFL) teachers' perceptions of effective teacher characteristics within the Turkish context, highlighting variations based on disciplinary backgrounds and educational contexts. Similarly, Robinson and Lewis (2017) explored the characteristics associated with effective and ineffective teachers in urban schools, shedding light on the multifaceted nature of teaching effectiveness and the impact of contextual factors on instructional practices.

In addition to exploring perceptions of effective teaching, it is crucial to examine the sources and content contributing to teachers' PPK. Scholars such as Golombek (1998) categorise the content of PPK into domains such as self-knowledge, subject matter expertise, instructional strategies and contextual understanding. Levin and He (2008) emphasise the central role of teachers' beliefs in shaping their instructional practices, while Arıogul (2007) and Ruohotie-Lyhty (2011) highlight the significance of prior learning experiences and contextual factors in the development of PPK among EFL educators. Moreover, effective teaching is a multifaceted concept that encompasses various dimensions beyond perceptions of effectiveness. Scholars have identified time and

classroom management, professional development and knowledge of teaching issues as essential components of effective teaching practices. Studies such as Minor et al. (2002) have investigated pre-service teachers' perceptions of effective teaching, further highlighting the diverse array of characteristics associated with effective educators.

By synthesising insights from studies examining effective teaching and the sources of teachers' PPK, the present study aims to provide a comprehensive understanding of the interplay between PPK and effective teaching practices. Through this inquiry, the research seeks to contribute to the enhancement of teacher education programmes and the refinement of instructional practices in diverse educational contexts. Despite the existence of numerous studies examining the intersection of PPK and effective teaching across various educational domains, there appears to be a notable gap in research focusing on EFL teachers. To the best of our knowledge, no longitudinal study has been undertaken to explore EFL teachers' perceptions of effective teaching through the lens of PPK.

The present study therefore endeavours to fill this gap by investigating the benefits of incorporating awareness of PPK into effective teaching practices among EFL teachers. By examining the knowledge base emphasised by EFL educators in their perceptions of effective teaching, the research aims to shed light on the intricate dynamics between PPK and pedagogical effectiveness in the context of language instruction. Addressing this research question is crucial not only for advancing our understanding of effective teaching practices within the realm of EFL education, but also for informing teacher education initiatives aimed at cultivating a deeper appreciation of the role of PPK in enhancing pedagogical outcomes. Ultimately, the study seeks to contribute valuable insights to the field of language education and to foster the continual improvement of teaching practices among EFL educators by addressing the following research question:

- Which knowledge domains do EFL teachers focus on more through their perceptions of effective teaching?

Method

Participants

Sim et al. (2018) determined that the recommended number of participants for phenomenological studies is from three to ten. The present study was conducted among seven experienced EFL teachers across three public education institutions in Turkey, as the focus was to gain in-depth information about the phenomenon of effective teaching through PPK. Purposive and criterion sampling were utilised to select the study participants. In addition to actively

teaching EFL courses, the participating teachers also served as mentors for pre-service teachers in English Language Teaching (ELT) departments, which was the criterion for the aim of the study. Such teachers are required to acquire a certificate by attending a mentor training programme carried out by the Ministry of National Education (MONE) and are involved in both teaching and mentoring. The participants who were selected purposefully for the investigation of PPK through their effective teaching perceptions were drawn from the limited number of teachers who had acquired this mentoring certificate. All of the participants signed a consent form indicating that they were participating in the study on a voluntary basis.

As shown in Table 1, five of the participants were female and two were male. Their ages ranged from 32 to 50 years. In terms of education, four had graduated from a Faculty of Education, while three had graduated from a Faculty of Arts and Sciences; one held a master's degree, while the others held bachelor's degrees. One of the participants had 8 years of teaching experience, four had 11–16 years, and two had 20–25 years; one taught in a high school, while the others taught in secondary schools.

Table 1

Demographic features of the participants

Code	Gender	Age	Experience	Department	Qualification	School
T1	Female	37	14	Education	Bachelor	Secondary
T2	Female	37	15	Arts and Sciences	Bachelor	Secondary
T3	Male	50	25+	Education	Bachelor	High school
T4	Female	32	8	Education	Bachelor	Secondary
T5	Female	49	20	Arts and Sciences	Bachelor	Secondary
T6	Male	40	16	Arts and Sciences	Master	Secondary
T7	Female	34	11	Education	Bachelor	Secondary

Interviews and observations were conducted in the participants' home institutions, where they were teaching more than 24 hours per week. All of the participants utilised course materials standardised by MONE, employed smartboards and facilitated various skills-based activities. The specific work and teaching environments, the learners' individual differences and the teachers' individuality may have affected the latter's PPK.

Instruments

Data were collected via observations and three semi-structured interviews. Before data collection, a form was prepared to document basic demographic information about each participant. This information included gender, age, faculty of graduation, teaching experience and previous training attended.

Semi-Structured Interviews

The question content for the first semi-structured interview was prepared before the interview session. The basic criterion for the interview questions was their relevance to the teachers' PPK about effective teaching. After developing an initial set of questions, these were reviewed by a field expert with a doctorate in educational sciences to ensure the credibility of the study. The goal of this review was to determine whether the interview questions correlated with the study's main research question. Following the expert's review, the final interview questions were determined, comprising seven open-ended questions. When necessary, some extra questions could be asked to clarify the participants' responses; thus, the interview was semi-structured. Based on the transcriptions and content analysis of the first round of interviews, the interview questions for subsequent sessions were developed so as to expand and explore the initial responses. The semi-structured interviews took place over the course of one academic year. Table 2 presents the date range, meantime and number of words employed within each set of interviews.

Table 2

Summary of date range, meantime and number of words in interviews

Interviews	Date Range	Meantime	Number of Words
1st round	October–December 2018	200 mins	8,067
2nd round	March–April 2019	250 mins	13,252
3rd round	May 2019	120 mins	4,870
Total	Eight months	570 mins	26,189

The recordings, totalling 570 minutes in duration, included 26,189 words, which were transcribed *verbatim*. The first round of interviews included 8,067 words, the second comprised 13,252 words and the third had 4,870 words. All of the interviews were semi-structured in order to gather the participants' opinions, beliefs and perceptions regarding teaching effectiveness more accurately.

Following the first round of interview transcription, the second round of interviews was conducted in order to elaborate the responses from the first

round. Again, all of the interview questions were reviewed by a field expert prior to being finalised. The second round of interviews included 12 questions. After the second round, classroom observation commenced. The third set of interview questions was then developed following the same procedures as the first two sets, and five questions were included in this third interview set. The responses were transcribed *verbatim*.

The transcriptions of each interview recording were crucial to the data collection process, as listening to the participants repeatedly enabled the researchers to become more familiar with their individual experiences and different perceptions of teaching effectiveness.

Classroom Observation Form

Each participant was observed for two hours of classroom teaching. This enabled the researchers to observe the participants with different groups of students throughout the two-hour teaching period. Classroom observation in this study was based on the notion of "non-participant observation", in which researchers do not participate in the activities or situation of the observation context (Fraenkel et al., 2012). An observation form was employed during the classroom observation to observe the consistency between the expressions that were stated in the interviews and the in-class activities, and to investigate the EFL teachers' PPK in effective class teaching. The purpose of each observation was to determine whether the participant applied the things that s/he had mentioned in the interviews. As Connelly et al. (1997) point out, what the research subject says and what s/he does in the classroom needs to be studied as a whole. Thus, the things that the participants did actively during teaching were noted down on the observation form in line with the research goal.

Research Design

The present study employs a qualitative descriptive design. According to Creswell (2013), qualitative research explores a human or social problem via inductive or deductive "patterned or [thematic]" meaning-making. The methodology of this study is grounded in phenomenology and aims to describe a specific phenomenon, that is, effective teaching in the actual study within shared experiences. Experienced teachers' perceptions of effective teaching from the perspective of PPK are described in the study, so it is an example of phenomenological research. Creswell (2007) states that "... a phenomenological study describes the meaning of several individuals of their lived experiences of a concept or phenomenon. Phenomenologists focus on describing what all participants have in common as they experience a phenomenon" (p.

57). Interviews and observations were conducted to gather data regarding in-service EFL teachers' perceptions of teaching effectiveness. Shared perceptions of teaching effectiveness were considered among teachers from three different state institutions in Turkey.

Inductive content analysis was utilised to categorise the interview responses and observation notes. Following the transcription of the interview recordings, the responses and observation notes were analysed by listing the attributes identified by each participant. Categories of attributes were then created. Afterward, categories of attributes and related transcriptions were given to three raters enrolled in a master's programme at the researchers' home institution. In collaboration with the researchers, the raters identified correlations between the categories of attributes. The data collected in the interviews and observations were then examined and the participants' responses were arranged into categories. Similar utterances produced by the participants were collected under a code and then reviewed in terms of their frequency of use. Finally, a field expert reviewed the analysis results. The participants were coded as T1, T2, etc., but were also assigned pseudonyms. Table 3 contains the pseudonyms used for each participant, as referenced in the analysis of the results.

Table 3
Pseudonyms for the participants

Code	Pseudonym
T1	Zehra
T2	Berna
T3	Bekir
T4	Zuhal
T5	Asu
T6	Tufan
T7	Defne

Credibility

In order to ensure credibility, the study employs the "prolonged engagement" strategy, which involves maintaining contact with the participants over an extended period. A field expert was also consulted throughout the data collection process to supplement this form of credibility. Transferability was ensured by describing the participants' features and workplace environment in depth. In case the researchers decide to conduct a similar study among another group of participants, the data collection process is elaborated to ensure confirmability.

The findings derived from data analysis of the EFL teachers' PPK of teaching effectiveness cohere with the data sources, while the study's main aim is consistent with the data collection tools utilised. Finally, the involvement of graduate-level research assistants as well as field experts in the data collection and analysis stages supports the credibility of the data collected in the study.

Results

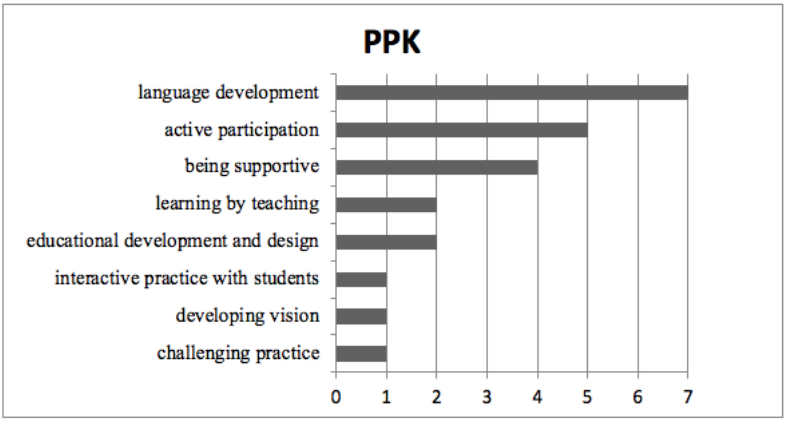
Regarding the characteristics of effective teaching as practised by the surveyed teachers in their settings, the following five themes emerged: classroom dynamics, students' motivation, teacher engagement, assessment and engagement strategies in education, and empowering environment for active learning. Within these basic themes, more specific sub-themes were identified. Presented in Table 4, these sub-themes were determined by taking into account the opinion of an expert.

Table 4
Themes and codes in qualitative analysis

Themes	Codes
Classroom Dynamics	Improving students' development, practices, students' language production, teachers' supportiveness, interactive practice with students, language development, collaborative development, learning with language, interaction between native speakers, learning by teaching, educational development
Students' Motivation	Teachers' supportiveness, learning with language, developing insight, educational development, conversational techniques, interactive practice with students, insight, modelling practice, language development
Teacher Engagement	Challenging practice, overviewing plans, collaborative development, assigning students, developing material, involving parents
Assessment and Engagement Strategies in Education	Test results, feedback, interactive practice with students, learners' interest
Empowering Environment for Active Learning	Learning by teaching, learner-oriented, developing physical conditions and teachers' supportiveness

Frequency was used to denote the number of participants who mentioned a specific thematic code, and the highest frequency themes included *language development*, *active participation* and *teachers' supportiveness*. The thematic codes and frequencies are displayed in bar chart form in Figure 1.

Figure 1
Definition of teaching effectiveness



In terms of defining teaching effectiveness, the most frequent aspect was *language development* (f: 7). All of the participants referred to language development in their definitions of teaching effectiveness, highlighting the fact that effective teaching leads to the development of all language skills, particularly speaking. For example, Bekir expressed that "effective teaching is a teaching model that includes four basic language skills, but speaking should be more heavily loaded. A learner should understand what he listens to and reply to it with his courage" (Bekir-Interview 1). Additionally, Tufan asserted, "If learners can express themselves or their lives from 'A' to 'Z', then we can talk about effective teaching. Their language development shows us effective teaching" (Tufan-Interview 1).

From the classroom observation, it was clear that the teachers utilised worksheets, smartboard presentations and supplemental activities to foster the students' language development, allowing students to speak, play or interact to encourage their active participation. When the students got into difficulty while performing, the teachers were supportive. Zuhal let her students answer some challenging fill-in-the-blanks activities allowing the students to come up with answers by focusing on the sentences.

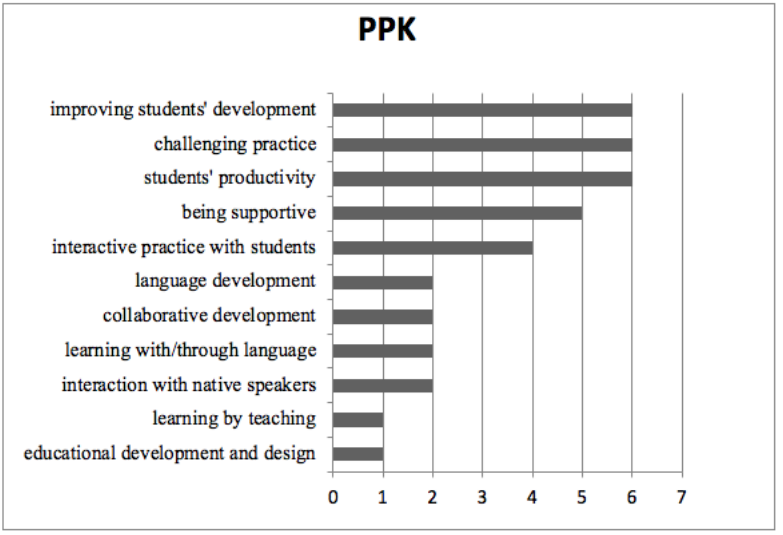
Classroom Dynamics

While investigating the participants' PPK through their perceptions of effective teaching, the theme of classroom dynamics emerged, which shows the environment within which the classroom community of teachers and students

interact as well as their means of interaction in that environment. In order to explore this theme, the participants were asked to provide clarification regarding what they considered to be effective teaching practices. The PPK codes and frequencies are presented in Figure 2.

Figure 2

Classroom Dynamics



In terms of classroom dynamics, the most common themes were *improving students' development*, *challenging practice* and *students' language productivity* (f: 6). Nearly all of the participants referred to these themes in their conceptions of effective teaching. Regarding *improving students' development*, they asserted that effective classroom teaching leads learners towards self-improvement. Zehra's and Berna's comments indicate the importance of the syllabus and the language level in this improvement. Zehra explained, "First, considering the framework of the syllabus, I determine which activities I will use for improving each learner's development according to them" (Zehra-Interview 2). On the other hand, Berna explained the following:

> In different classrooms, the teacher needs to consider learners' classroom community. For example, when I use an activity that includes a difficult item, I try to teach it simply, not giving details. It is already challenging for them. However, in another classroom, I teach everything about that specific grammar item because they understand all of it. (Berna-Interview 2)

Classroom observation indicated that the participants empowered learners to express themselves and that they respect the value learners bring to the classroom. They also allowed learners to utilise technology throughout the lesson; for example, Defne, Zehra, Asu and Berna allowed learners to use smartboards. Defne and Zuhal also used group work activities for collaborative development.

Students' Motivation

The theme of students' motivation also emerged in the participants' perceptions of teaching effectiveness. In order to expand this theme, questions focused on specific means of engaging students. The codes and frequencies are presented in Figure 3.

Figure 3
Students' Motivation

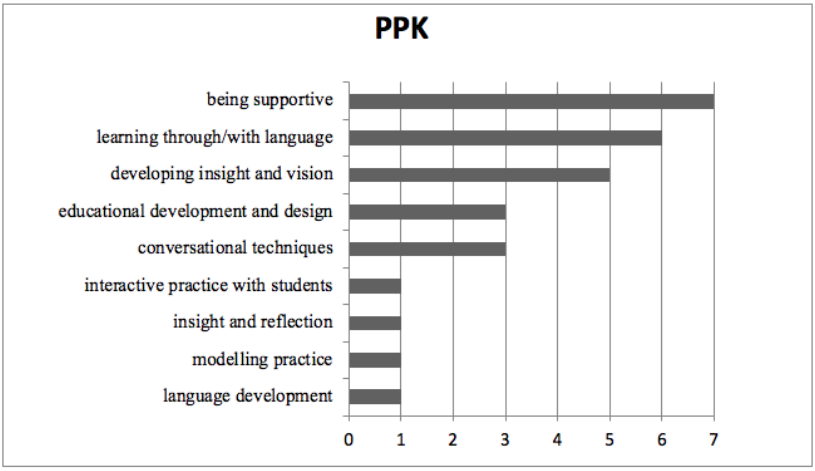


Figure 3 demonstrates that being supportive, learning with/through language, developing insight and vision, educational development and design, conversational techniques, interactive practice with students, insight and reflection, modelling practice, and language development were referenced to increase learner motivation. The most frequently referenced issue in terms of motivation was being supportive (f: 7). All of the participants referred to supportiveness in their perceptions of student motivation within effective teaching, emphasising that learners should value the class and the teacher and that teachers should be

supportive in order for learners to derive this value. Supportiveness was linked to terms such as "loving", "endearing" and "appealing". Engaging learners' backgrounds and interests was also cited as a practice for increasing motivation. Tufan's, Defne's and Zuhal's comments demonstrate their perceptions of motivating practices. Tufan states, "At the beginning, if the teacher endears himself/herself to students or gets their interests in the class, then s/he accomplishes the most important goal both for learners and the teacher" (Tufan-Interview 2). Similarly, Defne explains, "In this generation, students love visuals. They are important to them, so I provide a video at the beginning of the class to support them or I use a smartboard to get their attention; otherwise, they could get bored easily" (Defne-Interview 2). Finally, Zuhal claims, "In order to get learners active, you need to find a variety of activities that address different learners" (Zuhal-Interview 2).

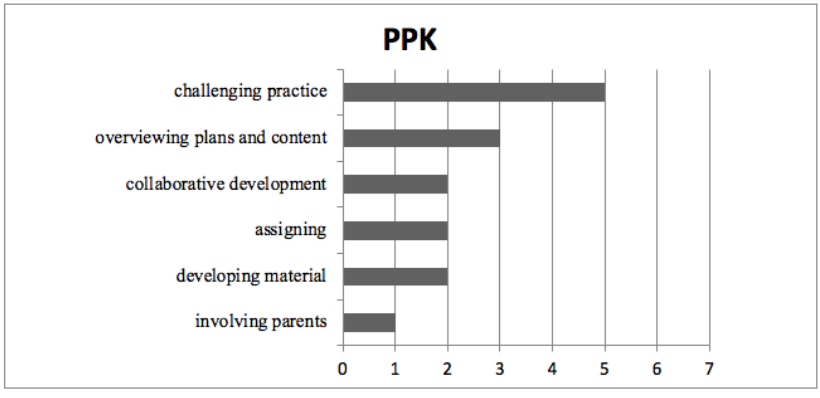
In terms of classroom observation, it was interesting that Zehra and Defne fostered the students' motivation by appealing to their personal experiences. Moreover, Zehra and Bekir employed positive language to encourage the learners and were especially sensitive about being positive in order to better support them, often smiling at them. In addition, Defne, Zehra and Berna used smartboards, visuals and videos to motivate the learners. They made an effort to use technology during class because their students were interested in smartboards.

Teacher Engagement

Another quality referenced in the context of teaching effectiveness was teacher engagement, which emerged from the participants' perceptions of being prepared for the class in order to be effective. The codes and frequencies related to teacher preparation are presented in Figure 4.

Figure 4

Teacher Engagement



As shown in Figure 4, the themes of teacher engagement included challenging practice, overviewing plans and content, collaborative development, assigning, developing material and involving parents. The most frequently referenced theme was challenging practice (f: 5). The teachers felt responsible for preparing for each class by creating practices, exercises, questions or tests related to syllabus content. They also felt responsible for encouraging students to study more. Thus, they prepared challenging activities such as worksheets and questionnaires to keep the learners focused. These exercises were slightly difficult but achievable, thus meeting the students' needs: they were neither too easy nor too hard for the learners' level, making them appropriately challenging. The second most emphasised issue was overviewing plans and content (f: 3). In order to prepare for each class, the teacher should identify the lesson's steps, activities and content. Collaborative development, developing materials and assigning/giving homework were also mentioned by the participants (f: 2). The participants felt that collaborative development in cooperation with their colleagues helped them to improve their field knowledge and classroom teaching practices, as demonstrated by Bekir's and Defne's comments. Bekir explains the following:

> For example, the present perfect tense is a difficult grammar item to teach because there is no cover in Turkish. Many years ago, I learnt from my Spanish colleague to use two circles with an intersection to teach it. That really works for me even today. In that, my student does not like listening to me for hours. (Bekir-Interview 2)

Similarly, Defne explains "I find or create some new worksheets, presentations or videos before the class. If there is a song related to the topic, then I try to find it" (Defne-Interview 2).

Preparing student-appropriate activities was highlighted as an important aspect of teacher engagement. Some of the participants emphasised the importance of collaborating with colleagues to create these tailored activities. In an effort to enhance her teaching effectiveness, Asu informed one student's parent about their performance on a test and called another parent to report that their child had not completed their homework.

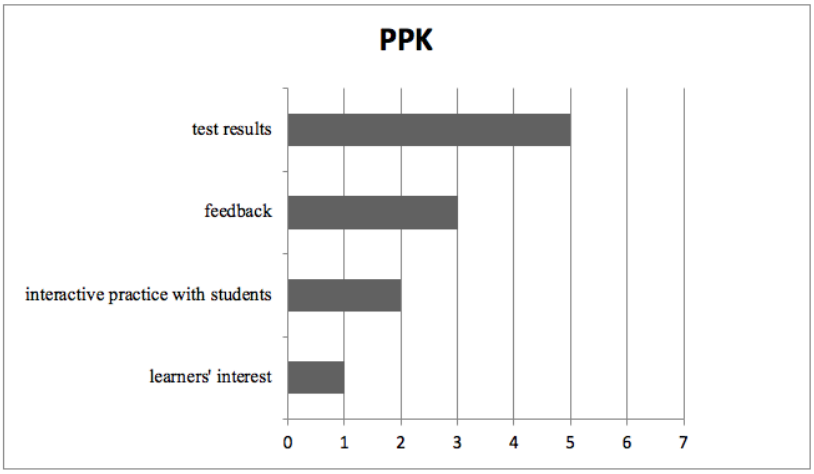
Assessment and Engagement Strategies in Education

Assessment and engagement strategies in education were also major themes related to teaching effectiveness. In order to explore these issues, questions related to an effective teacher's assessment methods and engagement

strategies were also discussed. The thematic codes and frequencies are displayed in Figure 5.

Figure 5

Assessment and Engagement Strategies in Education



As shown in Figure 5, test results, feedback, interactive practices with students, and learners' interests were referenced as ways of assessing the teachers' own effectiveness. Test results were the most emphasised theme (f: 5). Most of the participants were teaching eighth graders in secondary school settings. These students were preparing for a final exam called the High School Entrance Exam (HSEE), which includes ten multiple-choice questions in English, so the teachers wanted to prepare the learners for this exam. Throughout the term, practice tests were administered and the teachers evaluated the results as a means of judging their teaching effectiveness. Moreover, they adapted their teaching methods and content focus based on the results. It was remarked that administrators also viewed the test results in order to gauge both teaching and teacher effectiveness. For example, if the students earned high marks, their teacher may be offered the opportunity to teach more successful classes the following year. On the other hand, some of the surveyed teachers did not regard test results as an accurate indicator of teaching effectiveness, as some students studied at home, where they were able to take additional practice tests. Thus, some of the participants thought that test results were not directly related to effective teaching, as other factors like study habits may also play a role. Zehra stated, "I think that effective teaching is not directly related to test results

because students study at home, too. They may get private courses" (Zehra-Interview 2). Similarly, Bekir explained, "During the class, I ask the students some questions related to past topics. I understand whether it is taught effectively or not according to students' replies" (Bekir-Interview 2).

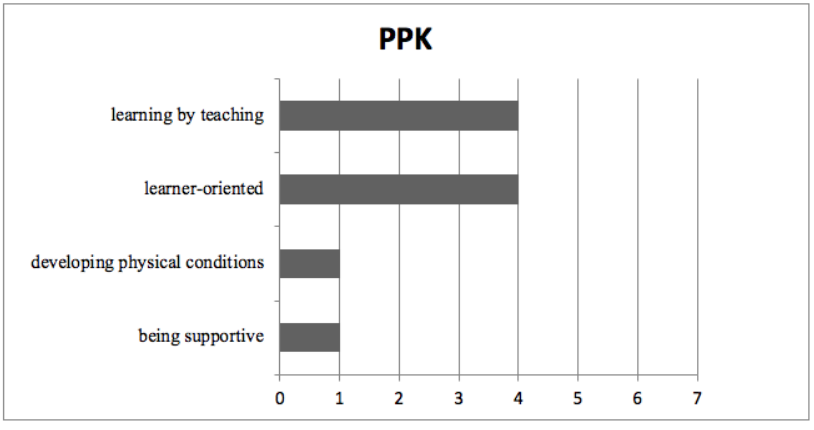
Test results were clearly an important factor in assessing teaching effectiveness. Some of the participants even congratulated students who earned high scores in tests, while learners who earned low marks were advised to study more diligently and answer more multiple-choice practice questions prior to taking tests. These students were assigned additional practice tests and exercises and were encouraged to revise new vocabulary. The teachers provided feedback when students asked how to improve their test scores. Zuhal and Zehra effectively assessed their teaching methods through student interactions, as interaction between students leads to more effective teaching. Tufan assessed his teaching effectiveness by engaging the students' interest.

Empowering Environment for Active Learning

Another theme related to perceptions of teaching effectiveness was teachers' empowering the environment for active learning. As defined by the participants, environments that need to be empowered included limited time for language classes, the washback effect, busy teachers (who have many issues to deal with), memorisation, analytical approach habits, and limited access to target language input. The participants were consequently asked some questions related to overcoming challenges. The thematic codes and frequencies are presented in Figure 6.

Figure 6

Empowering Environments for Active Learning



As shown in Figure 6, the participants referenced learning by teaching, a learner-oriented approach, developing physical conditions and being supportive as effective strategies to create an empowering environment. Learning by teaching and a learner-oriented approach were the most emphasised behaviours (f: 4). The participants compared their own learning conditions with current situational problems surrounding their learners. For example, it was remarked that a lack of course material was overcome by technological developments. Furthermore, the teachers learned how to overcome such problems with teaching experience.

Other behaviours that the participants emphasised as effective reactions to empowerment issues were arrangements for learners within the curriculum framework. While taking into account the syllabus, learners' individual differences such as their language proficiency level and their ages were also considered. Thus, learner-oriented was added as a code under this issue (f: 4). Berna's, Tufan's and Zuhal's comments indicate learner-oriented teaching practices. Berna expressed the following:

> It is so difficult to overcome systemic problems because there is an exam at the end of the term. I cannot implement speaking activities. For example, I try to teach the subject according to the learners by using materials, or I know that they learn vocabulary instead of grammar. I regulate everything in the class by considering them. (Berna-Interview 3)

Similarly, Tufan stated, "I think not having a special language classroom is a systemic problem. For instance, we need extra equipment for listening. The teacher should try to solve this problem by meeting with parents" (Tufan-Interview 2). Zuhal explained, "In order to overcome problems, I try endearing the class. For example, I use games that the students like" (Zuhal-Interview 2)

In Zuhal's classroom observation, the students were arguing about a problem they had experienced during the break period, and one of the students reported it to Zuhal. This was a systemic problem for Zuhal due to limited class time. She tried to solve the problem of class disruption by redirecting the students' attention to an interactive game on the smartboard, and succeeded in overcoming the problem by using an interactive game that the learners could enjoy.

Discussion and Conclusion

This study investigates the nature of PPK among EFL instructors through their perceptions of teaching effectiveness. The findings indicate that perceptions of effective teaching relate to both teachers and learners. According to

both groups, effective language teaching involves the ability to improve learners' language performance, encourage active language use among learners, provide teacher support and build relationships with students, and practise teacher engagement. These findings align with previous research on PPK (Chen, 2005; Chetcui, 2009; Chou, 2008; Dorovolomo, 2004; Gholami & Husu, 2010; Rahmany et al., 2014; Ruohotie-Lyhty, 2011; Sandoff et al., 2018; Tang, 2010; Tsang, 2004) and effective teaching (Arslan, 2014; Barnes & Lock, 2013; Brown, 2009; Chireshe, 2011; Mupa & Chinooneka, 2015; Sakamoto, 2012). The results demonstrate that EFL teachers' PPK impacts their teaching effectiveness. Consequently, teachers can be guided to use recent developments in English language teaching, such as technological and methodological advancements, to enhance their learners' language competence across the four skills. The participants also mentioned limited class time and external interference as factors affecting teaching effectiveness.

Improving students' development, providing challenging practices and encouraging students' language production were the issues most frequently emphasised by the participants in defining effective language teaching in classrooms. Additionally, while discussing students' development and the provision of challenging practices, the participants highlighted the differences between students. These results are similar to a study by Chetcuti (2009) investigating gender differences in science teachers' PPK, which found that teachers focused on learners' individuality, particularly cultural and social background, rather than gender differences. Parker and Rennie (2002) and Johnston (1992) emphasised learners' individual needs and found that establishing good relationships with learners was essential to determining individual needs. Similarly emphasising challenging practices as a form of student development, Dorovolomo (2004) conceived of the teacher as a "tour guide" who guides student tourists to various activities, locations or sites. The teacher also guides learners to challenging practices according to individual student needs. It can be said that teachers should be supported in using classroom dynamics more effectively in order to train their learners to be more autonomous.

Another finding of the present study, which correlated with existing research on teaching effectiveness, pertained to teacher support and learner motivation. For example, Ruohotie-Lyhty (2011) states that "language teaching should no longer concentrate just on learning the system of the target language but also motivate learners to develop their social and intercultural skills" (p. 365). In the current study, being supportive was the most emphasised issue in teacher perceptions of motivation. Without teacher supportiveness, it is difficult to engage students, who need to feel valued on a personal level. A study by DeVries and Beijaard (1999) similarly found that learners' positive emotional

dispositions created through a positive classroom atmosphere impacted their motivation. Tartwijk et al. (2009) observed similar results in multicultural classrooms. Moreover, a study by Richards (1996) demonstrated humanity and trust as forms of learner motivation, while Bremner (2020) underlined positive relationship-building between teachers and students. Motivation is an important issue to increase learners' productivity in the target language, which is why teachers should be educated about how to create a positive atmosphere in language classrooms, enabling language learners to develop positive attitudes towards language learning and come to value such learning.

Regarding teacher engagement, the results of the present study correlate with several other studies that have asserted the importance of teacher engagement for effective foreign-language teaching. For example, in a study by Barnes and Lock (2013), respondents thought that an effective language teacher should actively prepare for each class; thus, "good preparation" was rated highly as an attribute for effective teaching (p.24). Similarly, Dorovolomo (2004) valued "thorough preparation" as a means of achieving lesson goals and creating positive learning conditions (p. 12). Sandoff et al. (2018) also underlined the significance of teacher engagement with regard to teaching effectiveness. Similarly, Barnes and Lock (2013) found that students also overwhelmingly favoured teacher engagement. Chilla et al. (2024) valued teachers' preparedness for digital inclusion in a foreign language teaching context. On the other hand, Sakamoto (2012) highlighted the "ill-preparedness" of EFL teachers in terms of training, finding that several teachers who lacked sufficient training were underprepared. Therefore, teachers should be supported in planning content for lessons and designing effective activities during their pre-service education. Additionally, teacher educators could design their lessons in such a way that pre-service teachers are given enough opportunities to practise lesson design.

In terms of teacher engagement, the most emphasised aspect of the current study was the creation of supplemental materials and practices. The surveyed teachers stated that they felt responsible for preparing additional practices, exercises, questions and tests to supplement the material in the syllabus. One effect of designing these additional practices was increased engagement and motivation among learners. Parallel to this finding, a study by Chireshe (2011) found that effective lecturers were perceived as those who delivered extra handouts, used additional teaching materials, explained lessons clearly and delivered them well.

Assessment and engagement strategies in education were among the themes that emerged in the surveyed teachers' perceptions of teaching effectiveness. Test results, feedback, interactive practices and individualised practices

were all emphasised within this theme. In particular, the teachers focused on test results to assess teaching effectiveness. Moreover, the washback effect was viewed as one cause of this emphasis on test results. Duffee and Aikenhead's (1992) investigation of science teachers' PPK of student evaluation found that assessment techniques differed from one teacher to another and that students' daily work significantly impacted each teacher's assessment method. The participants in the current study did not highlight the aspect of daily performance in their conceptions of effective assessment, instead focusing on test results as a means of teaching effectiveness, partly due to the mandatory testing requirements (an entrance exam) that are integral to their students' transition to high school.

Another significant theme that emerged in perceptions of teaching effectiveness was teacher behaviour in the context of empowering environments for active learning. In this regard, the focus was on systemic problems, including limited time for language classes, the washback effect, memorisation, the education system and limited access to the target language. The results indicated that the teachers perceived learning by teaching, learner-oriented teaching, development of physical conditions and supportiveness as effective reactions to these systemic problems. These findings correlate with those of Gholami and Husu (2010), who emphasised the value of learning by teaching, explaining that "generally, teachers justified their practice by their experience" (p. 1524). Rahmany et al. (2014) also highlighted learning by teaching and learner-oriented teaching, noting differences between teachers' PPK due to contextual issues. According to them, teachers used individualised ways of teaching, which involved utilising personal experience to overcome new problems. In another study, Ruohotie-Lyhty (2011) explored inexperienced teachers' construction of teaching methods through PPK and found that the discourses of teachers may be either "restricting" or "opening" (pp. 369–71), with restricting discourses being described as involving "restrictions, limitations, and norms" (pp. 369–71). The emphasis on systemic problems in the present study may be viewed as restricting discourses, as they create obstacles for teachers. In Ruohotie-Lyhty's study, teachers' means of dealing with restrictions were referred to as "teachers' agency" instead of PPK (p. 324).

According to the results of the present study, a variety of issues comprised EFL teachers' PPK in terms of teaching effectiveness. The most frequently referenced themes were language, learner, context, material and teachers. Language development was also emphasised, as it relates to all aspects of language teaching. In summary, teachers' characteristics, practices and experiences determine their current and future teaching effectiveness. PPK enables greater self-awareness

and teaching effectiveness among teachers. Thus, PPK can be said to have certain implications for teachers, learners, teacher educators and material designers. Teachers could be given more opportunities to raise their awareness about their own practices. When they reflect on their personal practices, they can improve their personal practical knowledge, which might contribute to teacher learning. Similarly, in teacher education programmes, pre-service teachers could be trained in strategies related to taking responsibility for their own learning and being open to change, while some courses could be designed so that pre-service teachers are taught how to increase their professional learning. Teacher educators could guide pre-service teachers in their teaching practice so that they learn how to raise their own awareness about their professional development. Material designers could provide activities that teachers can use more creatively in their classrooms. This may also be an opportunity for teachers to develop themselves while using materials. Teachers should be provided with opportunities to use the same material in different ways with different language proficiency levels of groups in various contexts. This may also encourage teachers to develop themselves individually. While the findings of the present study may offer important insights, it could be expanded in a few main ways. First of all, a greater number of participating EFL teachers may offer a means of generalising the findings among different groups. Moreover, additional studies could focus on EFL teachers' PPK of teaching effectiveness in terms of distinct language skills (listening, reading, writing and speaking).

Disclosure Statement

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Biographical note

Fadime Yalcin Arslan, PhD, is an Assoc. Prof. in the field of English Language Teaching at Gaziantep University, Turkey. Her research interests include language learning, language teaching, teacher education, professional development and reflective practice.

Ayse Nur Erdem, MA, is an English Teacher at Ministry of National Education, Turkey. Her research interests include language learning, language teaching and teacher education.

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Attitudes of Slovenian School Teachers Towards Smart Educational Humanoid Robots in the Classroom

Dejan Zemljak[1]

Robots are becoming an increasingly important part of our everyday lives and, consequently, of the education landscape. They can take many forms in education, from simple robots that students assemble and program to more complex (humanoid) robots that can, for example, travel distances when working remotely. The attitude of Slovenian teachers towards the introduction of smart educational humanoid robots into everyday school life was explored. A questionnaire was designed, and the current state of teachers' attitudes was analysed based on the responses of participating teachers. The results show that negative attitudes towards the use of robots in the classroom prevail and that teachers do not feel qualified to integrate smart educational humanoid robots in education. Statistically significant differences between male and female teachers also emerge in some of the statements. However, teachers expressed positive attitudes towards concrete examples of robot use.

Keywords: education, humanoid robots, smart educational robots, STEM, teachers' attitudes

1 Faculty of Natural Sciences and Mathematics, University of Maribor, Slovenia; dejan.zemljak1@um.si.

Stališča slovenskih učiteljev do pametnih izobraževalnih humanoidnih robotov v razredu

Dejan Zemljak

Roboti postajajo vse pomembnejši del našega vsakdanjega življenja in tudi izobraževanja. V izobraževanju uporabljamo robote različnih vrst – od preprostih robotov, ki jih učenci sestavijo in programirajo, do zapletenejših pametnih izobraževalnih humanoidnih robotov, ki lahko na primer pri delu na daljavo premagujejo razdalje med učencem in učiteljem ter sošolci. V prispevku smo raziskali odnos slovenskih učiteljev do uvajanja pametnih izobraževalnih humanoidnih robotov v šolsko okolje. Za namen raziskave je bil razvit anketni vprašalnik, na podlagi odgovorov sodelujočih učiteljev pa je bilo analizirano stanje odnosa učiteljev slovenskih šol. Rezultati kažejo, da prevladuje negativen odnos do uporabe robotov v izobraževanju in da se učitelji ne čutijo usposobljene za vključevanje pametnih izobraževalnih humanoidnih robotov v izobraževanje. Pri nekaterih trditvah se kažejo tudi statistično pomembne razlike med učitelji in učiteljicami. Kljub temu so učitelji izrazili pozitiven odnos do konkretnih primerov uporabe robotov, kot je premostitev razdalje pri dolgotrajno bolnih učencih.

Ključne besede: izobraževanje, humanoidni roboti, pametni izobraževalni roboti, STEM, stališča učiteljev

Introduction

The word 'robot' first appeared in 1920 in the novel 'Rossum's Universal Robots (RUR)' by the Czech writer Karel Čapek, but the first industrial robot did not appear until 1948 when George Devol patented a programmable manipulator, which was later considered to be the first industrial robot (Gasparetto & Scalera, 2019; Hockstein et al., 2007). Consequently, robotics does not appear in mainstream education (except perhaps in subjects related to engineering and technology, where students are involved in building such mechatronic systems and programming) and is, therefore, unknown to teachers. A robot is a machine consisting of at least three elements: 1) sensors to detect the environment, 2) processors that analyse the collected parameters and make decisions based on them and 3) implementers that allow the robot to operate in the real world (Devillers, 2021). The ISO 8373 definition is also similar, with the word *robot* defined as a 'programmed actuated mechanism with a degree of autonomy […] to perform locomotion, manipulation or positioning" (International Organization for Standardization, 2021).

Robotics is defined as the science or practice of designing, building, and training robots (Devillers, 2021). The following will focus on humanoid robots and examine teachers' attitudes towards using such robots in the educational process. It will also present whether teachers see the use of robots as an implementation option.

Education and Robots

Education has been changing in recent years. Robotics as a new technology could become an integral part of the learning process, just as robots could become an integral part of education. Therefore, a new definition has emerged: *Educational Robotics* (ER), which covers all fields related to robotics and education. ER is a field of research that seeks to improve human learning experiences by developing and implementing activities, technologies and artefacts in which robots play an important role (Angel-Fernandez & Vincze, 2018). Robots can be integrated into education in a variety of ways.

The robot as a *learning object* is a category of educational activity in which it is studied as a subject in its own right. It includes a variety of educational activities designed to configure a learning environment that will actively engage learners in problem-solving activities focusing on robotics-related topics. This means that students learn how to construct (assemble) and program robots.

Another category is the robot as a *learning tool*, in which the robot is a tool for teaching and learning content. This is usually seen as an interdisciplinary,

project-based learning activity, mainly in science, mathematics, IT and technology, and offers many new educational benefits (Alimisis & Kynigos, 2009).

Robots in education can have other different roles, such as 1) robot as a teaching assistant (the robot could replace the teacher by taking his/her position and lecturing or assisting in teaching), 2) robot as peer and co-learner (the students have to train the robot, as it is shown as a student with whom they are learning together), 3) robot as companion (the robot, created to facilitate real or virtual social interaction between students), 4) robot as entertainer (the robot that engages students, especially during free time in the classroom), 5) telepresence robot (in this scenario, the telepresence robot is an avatar of the teachers in the classroom, allowing a remote instructor to operate the robot and actively engage students), and 6) the robot as learning platform (Alvez-Oliveira et al., 2016; Belpaeme & Tanaka, 2021; Hrastinski et al., 2019; Mubin et al., 2013; Mubin & Ahmad, 2016; Reuters, 2022).

Theoretical Background

Robots are increasingly present in education today. Sometimes, they even take on the role of teacher. Intelligent ER is a tool that provides support for learning. It can cultivate creativity and other skills among diverse learners (Aoun, 2017). According to Rao and Ab Jalil (2021), ER can serve as a learning assistant to subject teachers in the classroom by explaining the curriculum and facilitating extracurricular activities that improve students' attention and focus. Thus, the robot does not take on the role of a teacher but rather is the student's learning companion. It follows the concept of *edutainment* and allows learning to occur separately from space and time, as the interaction between the student and the robot can continue outside the classroom (Rao & Ab Jalil, 2021). Because of the characteristics of new technologies, formal and informal learning are also becoming increasingly blended (Lebeničnik et al., 2015). Several researchers (Conti et al., 2017; Kory-Westlund & Breazeal, 2019; Rao & Ab Jalil, 2021) underline the fact that integrating smart educational robots into the educational process has positive effects and that integrating robots into education promotes the development of a wide range of skills, practically at all levels of education. Smart educational robots are expected to become an integral part of education. Robots in education could thus improve children's learning in the future, as robots would be able to operate autonomously (Serholt et al., 2017).

In various forms, ERs are potentially useful as teaching assistants (Conti et al., 2017; Kennedy et al., 2015; Kory-Westlund & Breazeal, 2019). According to the following research, the results of using robots in teaching have been favourable. Pre- and post-test scores, facial expressions, and indirect verbal responses were

used to assess the effectiveness of the Nao robot's human-assisted correction of mathematical concepts in instruction. The findings of the research showed that students were significantly more cooperative with the Nao robot, indicating favourable attitudes towards the use of humanoid robots in schools, although there were no significant differences in test scores (Mubin et al., 2019). Another use of the Nao robot in the classroom illustrates the benefits of robotics in education, as research has shown that children with special needs (such as autism) also responded favourably to the presence of a robot in the classroom. They showed more interest and enthusiasm (Yousif, 2021). Moreover, using robots in the classroom helps motivate students (Chevalier, 2016). Social and adaptive behaviour is often desirable in the educational process. To this end, as Kennedy et al. (2015) suggest, social robots could be used to influence learning support and increase learning opportunities. In a study by these authors, the presence of a robot using a mentoring strategy increased the effect of social behaviour, which also influenced learning. At the same time, it was found that students who interacted with a robot that used social and adaptive behaviour in addition to the mentoring strategy did not learn much. Therefore, significant considerations must be made before introducing robots into the educational process. Another study shows the positive impact of integrating smart educational robots into the educational process; Kory-Westlund and Breazeal (2019) state that their research shows the importance of children's peers for learning and development. They highlight the interaction with peers (especially more advanced peers) that can accelerate the speech development of preschool children. Their paper explores the relationship that significantly modulates language learning in children with peer social robots. The results showed that children who imitated more robot phrases during storytelling (child-robot interaction) scored higher on a vocabulary posttest.

Another study found that students love learning with smart educational robots, but teachers are reluctant to use them in the classroom. In a study where teachers and students interacted with a smart educational humanoid robot called Nao, teachers expressed concerns about integrating robots into education. Teachers expressed that they do not want the robot to take full autonomy in the classroom but want the robot to have a limited role in the educational process. Teachers also overwhelmingly expressed the belief that they want to have full control over the robot. However, the authors caution that the results may be related to a technological bias, as teachers are generally unaware of the presence of robots in education. Interestingly, the teachers in the study also stressed that they do not want the robot to take on full autonomy in the classroom but rather to act and behave as a learning 'friend' of the children rather than as a teacher. The authors thus conclude that it is much more likely that

robots will be used for some time as learning objects in the educational process rather than as learning tools in the classroom (Mubin & Ahmad, 2016).

Kory-Westlund et al. (2016) describe the case of an autonomous social robot that learns as a companion. A study was conducted using a social robot in three preschool classrooms for two months. Teachers were surveyed before and after the introduction of the robots in the educational process. The survey showed that teachers' expectations about their experience of working with an autonomous social robot companion in the classroom often did not match their actual experience. It turned out that teachers expected the robot to disrupt the educational process, but the opposite was true. Teachers also reported the positive potential of an autonomous social robot companion as a new educational tool (Kory-Westlund et al., 2016). According to a study by Reich-Stiebert and Eyssel (2016), teachers expressed a more pessimistic view of the use of educational robots in the classroom. Interestingly, teachers in the survey gave their opinion on whether robots should be used more often in STEM (science, technology, engineering and mathematics) subjects (Reich-Stiebert & Eyssel, 2016). Negrini (2020) reports similar results, as the findings of their study show that teachers are curious about educational robotics and are aware of the potential of using robots to promote interdisciplinary competences. Cost, the amount of time needed to prepare activities, and the fact that technology is already so prevalent in our daily lives are among the reasons that inhibit the introduction of robots in schools (Negrini, 2020). Similarly, Istenic et al. (2021) observed that pre-service teachers also have negative attitudes.

The presence of robots in education has both advantages and disadvantages. Therefore, teachers express optimism and concern, seeing many opportunities and potential challenges. Robots in the educational process often help to overcome personal problems related to shyness, reticence, self-consciousness and frustrations that can arise when interacting with a human teacher. The example illustrates all of these that no matter how many mistakes a student makes, the robot will not tire (Mubin & Ahmad, 2016; Tuna & Tuna, 2019). Despite this optimism, according to Serholt et al. (2017), we are not yet close to the reality of smart educational humanoid robots being used autonomously in schools for several reasons. These include ethical concerns around privacy, the robot's role in replacing humans, the effects of interaction on children, and liability. Despite the rapid and continuous technological development and the expectation that robots will replace teachers, this is not expected in the near future. At the moment, we are more focused on the goal of making robots work as learning tools and maximising the added value they can bring as stimulating and interesting educational tools. To make this possible, we must first provide appropriate interface

mechanisms (software, hardware or even mobile apps) that allow the teacher to control the robot with minimal training (Mubin & Ahmad, 2016). Robots have the potential to be helpful in the classroom and will eventually become more autonomous and competent, but they do not behave and think like humans. People working with them must think about their work in new ways (Macmurray, 2012).

Research Problem and Research Questions

After reviewing the literature, it was found that much research refers to educational robots as learning objects. This means that students study the robot as an object and assemble and program it. However, some researchers, such as Mubin et al. (2013), Konijn et al. (2020), and Reich-Stiebert and Eyssel (2015), point out that robots in education are also used for language, science or technology education, where they take on the role of an educational tool. Most also point out that a robot can be a mentor, tool, or peer in a learning activity.

This study explores Slovenian teachers' perspectives on using intelligent educational humanoid robots as a learning tool in the classroom. It is a very relevant issue in today's educational environment. This study is significant because it can add insightful information to the discussion of pedagogy and educational technology. Additionally, the study's regional context guarantees its applicability to Slovenia's educational system, offering a nuanced viewpoint that can benefit teachers and policymakers. This study offers current data on teachers' views and impressions of intelligent educational humanoid robots, laying the groundwork for additional research and discussion in this field. Furthermore, the paper identifies the major obstacles to properly integrating robots into the classroom and offers potential answers. This can help formulate policies that will advise teachers, educational institutions, and policymakers on how best to incorporate technological innovation into the teaching and learning process. Moreover, the question of whether teachers' gender impacts attitudes towards including humanoid robots in teaching has been explored. The results of such an analysis allow decision-makers to provide appropriate guidelines for further implementing this technology in the educational process.

As robots will become an increasingly important part of our everyday lives and ultimately become part of the educational environment, it is necessary to explore teachers' attitudes towards implementing robots in the educational process. Therefore, this study was designed to explore the attitudes of Slovenian teachers towards the integration of robots in the classroom, with the robot being included as a teaching tool to help students with, for example, learning difficulties, for assistance, for possible distance education, as was the case during the Covid-19 pandemic, and also as a teacher's assistant in the classroom,

in administrative and organisational matters. The following research questions were formulated:

Q1: Do teachers generally have positive attitudes towards integrating smart educational humanoid robots into the educational process, and how does this differ according to the gender of the participants?

Q2: Do teachers generally report that they feel empowered to integrate smart educational humanoid robots into the educational process, and how does this differ according to the gender of the participants?

Q3: Do teachers generally show positive attitudes towards concrete ways of implementing humanoid robots in education, and how does this differ according to the gender of the participants?

Method

Participants

A total of 255 Slovenian primary and secondary school teachers started the questionnaire, of which 49 did not complete it in full. Thus, 206 responses were taken into account. Regarding gender, 78.71% of the participants were women, and 20.87% were men (1.94% did not want to disclose their gender). The questionnaire covered different groups of teachers according to their years of teaching experience: less experienced teachers who have just started teaching and teachers with more than 30 years of experience. Regarding grade level, 9% of the participating teachers teach in the first cycle of primary school (grades 1-3), 6% in the second cycle (grades 4-6) and 34% in the third cycle (grades 7-9), 15% teach in vocational secondary schools and 17% in gymnasium. The teachers included in the study were randomly selected from a range of teaching fields (teachers of social studies, teachers of science, teachers of vocational subjects, teachers of primary education and teachers of secondary education). The teachers generally had no previous experience of teaching with educational robots.

Instrument

For the purpose of this research, a review of the literature on the research field was first carried out. During the review, we traced various questionnaires (Negrini, 2020; Rao & Ab Jalil, 2021; Saari et al., 2022; Serholt & Barendregt, 2014; Xia & LeTendre, 2020) that were adapted for our study. Statements from some of the studies were used for this study, and some statements were added at our discretion and judgment. This strategy was used to fill the research gaps and to modify the questionnaire according to the objectives and research questions of the study. The possibility of customising the questionnaire allows for

the collection of information directly related to the topic of the study and offers insights specific to the research objectives. In addition, modifying the statements of existing surveys allows the use of information and experience already written and ensures the inclusion of established and validated measures.

The first part of the questionnaire consisted of 13 statements concerning teachers' views on integrating smart educational humanoid robots in the educational process. This part consisted of statements exploring the intention of robots making decisions instead of humans, the idea of including robots with human characteristics in the educational process, the presence of robots in preschool education, the analysis of students' emotions and feelings by robots during lessons, the assessment of students' knowledge and work by robots, the possible complete replacement of teachers in the classroom by robots, and the recording of all classroom activities by robots.

The second part of the statements addressed teachers' views on the expression of empowerment to integrate smart educational humanoid robots into teaching and the specific purposes of using smart educational humanoid robots in education. This part consisted of five statements in the beginning, where participants were asked to respond to statements that examined whether teachers are empowered to use robots in the classroom. The statements addressed the possibility of using robots in the classroom as soon as possible, expressions of interest in involvement, the potential for involvement and whether teachers monitor progress in the development of humanoid robots for teaching purposes. This part also included four statements examining the potential use of robots as teaching assistants for students with disabilities, their support for distance learning and their support for administrative tasks for teachers. The questionnaire ended with demographic questions. Participants were asked to indicate their agreement with the statements on a five-point scale, namely 1 = *do not agree at all*, 2 = *disagree*, 3 = *undefined*, 4 = *agree,* and 5 = *strongly agree*. The study aimed to explore teachers' attitudes towards introducing smart humanoid robots in the educational process. It did not specifically focus on whether or not teachers had previous experience using robots in the classroom. Before answering the first part of the questionnaire, participants were asked to give their opinion on the idea of implementing such robots in the classroom, and for the second part, participants were asked to think about themselves and the situation in which they would be accompanied by a humanoid robot in the classroom. In this context, they were then asked to express their views on the statements in the second part of the questionnaire. Before completing the questionnaire, participants did not receive any training or additional information on using robots in the classroom. The focus was solely on their views or

opinions on implementing robots in the educational process, regardless of their previous experience.

Research Design

The study was conducted at the beginning of the 2022/2023 school year. A questionnaire was developed and uploaded to the Slovenian open-source online survey application 1ka.si. A link to the questionnaire was sent by e-mail to randomly selected Slovenian primary and secondary school teachers. The link to the online survey questionnaire was also posted on the forum of the Association of Innovative Teachers of Slovenia together with the invitation. The online questionnaire was completely anonymous, and by starting to answer the questions, the participants expressed their consent to participate in the study (they were warned about this before they started answering the online questionnaire). This questionnaire has been subjected to a reliability test. The scale's internal consistency is acceptable for this sample, as indicated by a Cronbach's alpha of .948. The data from the online questionnaire were analysed using descriptive statistics, calculating mean values (*M*) and standard deviations (*SD*). In order to test for statistically significant differences between the statements according to the teachers' gender, a non-parametric Mann-Whitney U-test was performed on the sample to compare the results between two independent groups (gender) at the 95% confidence level. Before carrying out the test, the conditions of use were tested. The Mann-Whitney test was chosen because it does not require a normal data distribution. All analyses were carried out using IBM SPSS statistical software.

Results

The results for the two statements where participants directly agreed or disagreed with the inclusion of robots in education are as follows: for the statement 'Robots should be included in teaching', it can be observed that the majority of the teachers were opposed to the statement, which indicates that there is a prevailing opinion that robots should not be included in the educational process (the results of the descriptive statistical analysis show that $M = 2.09$, $SD = 1.09$). The Mann-Whitney test for this statement did not show statistically significant differences according to the teachers' gender. Even stronger opposition is shown for the statement 'Robots should be present in kindergarten' (the results of the descriptive statistical analysis show that $M = 1.60$, $SD = .94$). Again, the test did not show statistically significant differences according to the gender of the teachers. The results of the other statements in this set are presented in Table 1.

It is clear that teachers are largely reluctant to let robots make decisions for them ($M = 1.35$, $SD = .65$), but they did express some minor disagreement with the statement that they could actually trust a robot ($M = 2.05$, $SD = 1.05$). Teachers show much more agreement with statements relating to emotional interaction with robots. Teachers expressed less disagreement that robots should show emotions ($M = 2.87$, $SD = 1.44$), with similar results for the statement that robots should analyse the emotions of both teachers ($M = 2.61$, $SD = 1.38$) and students ($M = 2.76$, $SD = 1.40$). It is important to point out that the mean is still less than 3, which means that teachers are still not very favourably disposed to these statements. The results are also very similar for the statement that robots could assess students' knowledge ($M = 2.67$, $SD = 1.38$) and that robots could work with the teacher to teach ($M = 2.69$, $SD = 1.23$). For this statement, the Mann-Whitney test also showed a statistically significant difference according to the gender split of the teachers ($U = 2685$, $p = .025$). The analysis shows that male teachers are more likely to agree with the statement than female teachers. Teachers are slightly less favourable to statements concerning the possibility of robots becoming evaluators of the learning process ($M = 1.58$, $SD = .85$), the possibility of robots replacing teachers completely ($M = 1.25$, $SD = .64$) and the need for robots to record everything that happens in the classroom ($M = 1.71$, $SD = .98$). The only statement where teachers expressed agreement with the statement is the one saying that robots should take responsibility for their actions when used in teaching ($M = 3.04$, $SD = 1.53$). This statement also showed a statistically significant difference according to the teachers' general level of agreement ($U = 2664$, $p = .022$), with male teachers expressing more agreement with the statement than female teachers.

Table 1

The opinion of teachers towards the inclusion of robots in the educational process

Inclusion of robots	*M*	*SD*	Gender	Mean Rank	Mann-Whitney U Test
Robots should take decisions instead of humans.	1.35	.65	female	99.05	*U* = 3028.5
			male	110.57	*z* = -1.440
					p = .150
Robots should be included in teaching.	2.09	1.09	female	97.50	*U* = 2783
			male	116.28	*z* = -1.955
					p = .051
Robots should be present in kindergarten.	1.60	.94	female	99.03	*U* = 3026
			male	110.63	*z* = -1.341
					p = .180
I could trust the robot.	2.05	1.05	female	98.05	*U* = 2870.5
			male	114.24	*z* = -1.692
					p = .091

Inclusion of robots	*M*	*SD*	Gender	Mean Rank	Mann-Whitney U Test
Robots should show emotions.	2.87	1.44	female male	102.23 98.80	*U* = 3302.5 *z* = -.349 *p* = .727
Robots should analyse the feelings of the teacher.	2.61	1.38	female male	103.12 95.50	*U* = 3160.5 *z* = -.782 *p* = .434
Robots should analyse the feelings of the students.	2.76	1.40	female male	103.61 93.70	*U* = 3083 *z* = -1.016 *p* = .310
Robots should assess the student's knowledge.	2.67	1.38	female male	100.97 103.45	*U* = 3334.5 *z* = -.256 *p* = .798
Robots should fully assume the role of an evaluator.	1.58	.85	female male	98.22 113.64	*U* = 2896.5 *z* = -1.743 *p* = .081
Robots could completely replace a teacher.	1.25	.64	female male	100.88 103.78	*U* = 3320.5 *z* = -.438 *p* = .662
Robots could deliver lessons alongside a teacher.	2.69	1.23	female male	96.89 118.56	*U* = 2685 *z* = -2.235 *p* = .025
Robots should record everything that happens in the classroom.	1.71	.98	female male	98.31 113.29	*U* = 2911.5 *z* = -1.664 *p* = .096
Robots should be held accountable for their actions.	3.04	1.53	female male	96.75 119.05	*U* = 2664 *z* = -2.285 *p* = .022

The results of the analysis of teachers' empowerment to integrate humanoid robots into teaching are presented in Table 2. The gender analysis showed a statistically significant difference for all five statements. For all statements, further interpretation of the results showed that male teachers in Slovenian schools are more willing to integrate humanoid robots in teaching than female teachers (average ranks are higher for male teachers than for female teachers for all statements). A more detailed examination of the results shows that the averages of agreement with the statements are low, indicating that teachers generally disagree with the statements. This is the case for the statements if teachers want to use robots in teaching as soon as possible (M = 2.41, SD = 1.17), if they see a high potential in using robots in teaching (M = 2.66, SD = 1.20), and if they see great potential in the use of robots in teaching in their subject field (M = 2.55, SD = 1.22) and if they follow progress in this field (M = 2.37, SD = 1.20), except for the statement that teachers are interested in the integration and use of robots in teaching (M = 3.00, SD = 1.35). Only this statement has a mean of 3.00, indicating teachers' neutral attitudes towards this statement.

Table 2

Teachers' opinion on the expression of empowerment for the inclusion of robots in education

Empowerment for the inclusion	*M*	*SD*	Gender	Mean Rank	Mann-Whitney U Test
I want to use robots as soon as possible.	2.41	1.17	female male	94.64 126.87	U = 2327.5 z = -3.332 p < .001
I am interested in the field of using and including robots.	3.00	1.35	female male	95.11 125.13	U = 2402.5 z = -3.091 p = .002
I see great potential in the use of robots in teaching.	2.66	1.20	female male	95.17 124.91	U = 2412 z = -3.059 p = .002
I see great potential in the use of robots in teaching in my subject field.	2.55	1.22	female male	97.30 117.02	U = 2751 z = -2.026 p = .043
I am following the progress in this field.	2.37	1.20	female male	96.03 121.73	U = 2548.5 z = -2.643 p = .008

When examining the specific use of robots in the classroom, the results showed statistically significant differences according to gender for the claim that robots could be used for students with special needs (U = 2695.5, p = .027) and that robots could help interact with students participating in lessons remotely (U = 2777, p = .046). In both statements, male teachers expressed more agreement with the statement than female teachers. The results of the descriptive statistical analysis show that teachers are generally quite supportive of the use and integration of humanoid robots in teaching in the cases, as shown by the statements in Table 3. For most of the statements, teachers expressed a higher level of agreement with the statement, while disagreement (or a neutral opinion) prevailed. Teachers expressed fairly high agreement with the statement that robots would be rebellious in administrative work (M = 3.60, SD = 1.17), which is, therefore, basically unrelated to actual classroom teaching.

Table 3

Teachers' views on concrete proposals for implementing robots in education

Concrete proposals for implementing	*M*	*SD*	Gender	Mean Rank	Mann-Whitney U Test
Teaching robots could be used for students with special needs.	3.00	1.18	female	96.95	*U* = 2695.5 *z* = -2.207 *p* = .027
			male	118.31	
Robots could help to interact with students who participate in lessons remotely (for example, due to illness).	3.20	1.14	female	97.47	*U* = 2777 *z* = -1.999 *p* = .046
			male	116.42	
Robots in education could only be used to help the teacher.	3.30	1.12	female	99.41	*U* = 3086 *z* = -1.029 *p* = .303
			male	109.23	
In education, robots could also be used in the administrative work of teachers.	3.60	1.17	female	98.36	*U* = 2919.5 *z* = -1.552 *p* = .121
			male	113.10	

Discussion

The research aimed to determine how teachers feel about integrating intelligent educational humanoid robots into the educational process. The results showed that teachers are somewhat opposed to the idea of smart educational humanoid robots becoming part of everyday school life. In fact, the majority of them believe that smart educational humanoid robots do not belong in the school environment. This opposition is also reflected in the argument that smart educational humanoid robots should already be present in kindergarten.

Further analysis of the results shows that teachers would not trust a robot in the educational process. Teachers show a negative attitude towards the statement that smart educational humanoid robots should be able to analyse the feelings of the teacher and/or the student in the classroom. It is very similar to statements concerning assessment. As van Ewijk et al. (2020) mentioned, the reasons could mainly be found in teachers' concerns regarding privacy, especially when the robot monitors and analyses individuals in the classroom. Here again, teachers expressed opposition and negative attitudes towards the use of robots in this field.

Teachers also disagree with the statement that robots could completely replace the teacher at school. As stated by Selwyn (2019), teachers remain confident they will not be replaced by modern intelligent tools. Although there is slightly less opposition to the statement that smart educational humanoid robots could teach alongside the teacher, negative attitudes are still prevalent.

The results showed that teachers do not have a positive attitude towards integrating smart educational humanoid robots into the educational process.

The results show that the majority of teachers have a negative attitude towards the use of robots in the classroom. Other studies, such as the one by Reich-Stiebert and Eyssel (2016), also reported similar findings. While it is important to point out that this is the opinion of the majority, it is nevertheless possible to trace among the results that some expressed very positive attitudes towards the statements, thus expressing the opinion that they are ready for the presence of smart educational humanoid robots in education. There are probably many reasons why the majority are opposed. It is particularly meaningful to point out that the vast majority of teachers have not had the opportunity to work with robots and consequently have no idea what such teaching would look like.

The results showed only a statistically significant gender difference in the two statements. Interestingly, male teachers showed more favourable attitudes towards the inclusion of robots in the classroom, while female teachers showed less favourable attitudes.

Almost half of teachers say they do not want to start using intelligent educational humanoid robots in their teaching immediately. It is assumed that teachers would first want to get more information about this type of teaching before using it and probably also to get examples of good uses of this type of teaching. This would help them prepare for robot-assisted teaching and overcome any fears that might be likely to arise when switching to robot-assisted education. As the results show, while teachers are interested in using robots for education, unfortunately, few are following up on this issue. This probably explains the results of this research, as it seems that teachers are not yet sufficiently familiar with the use of robots in education. Consequently, they do not see the potential of using robots in education. However, the analysis by gender of teachers in this set of statements showed statistically significant differences for all statements. A more detailed analysis shows that male teachers show a greater expression of empowerment to integrate and work with humanoid robots in teaching than female teachers. Based on the results, it was found that teachers do not feel empowered to integrate smart educational humanoid robots into education. However, it should be noted that male teachers expressed more empowerment than female teachers.

The results in concrete situations where robots could be used in education are also interesting. Teachers expressed the view that smart educational humanoid robots could be useful in concrete situations, such as assisting students with special needs and students who are ill and consequently unable to follow classroom lessons (and are present remotely). Teachers also see the usefulness of smart educational humanoid robots in their administrative work. In this case, the gender analysis showed that male teachers showed a greater

preference for implementation for teaching purposes, as there was a statistically significant gender difference in this case. However, no statistically significant difference was detected in the case of the statements concerning the robot's assistance to the teacher. The results of the data analysis show that teachers have positive attitudes towards certain robot implementation options.

Conclusions

The study comprehensively analyses Slovenian teachers' attitudes towards integrating smart educational humanoid robots into teaching. The key findings reveal a predominantly negative attitude towards using these robots in teaching, with teachers expressing a lack of confidence in their ability to integrate such technology into their teaching practices. However, there is a marked tendency towards positive attitudes when considering specific, concrete applications of robots in education, such as supporting students with learning difficulties and assisting in distance education.

Other research has also raised concerns about teachers' technological and pedagogical readiness, which is consistent with the results of this study. An important strength of this study is its regional focus, which provides a specific insight into the Slovenian educational context, which is under-represented in global research. However, the study's limitations include the relatively small sample size and potential biases due to the voluntary nature of participation, which could attract participants with stronger opinions on the topic. This study aimed to shed light on these views and identify areas for improvement, highlighting the importance of addressing teachers' concerns and improving their preparedness through targeted training programmes.

This study highlights the potential importance of educational robots in improving teaching and learning processes. Future research should focus on larger, more diverse samples, investigate the long-term effects of integrating robots into classrooms, and explore strategies to effectively support teachers in this technological transition.

Disclosure Statement

The author has no conflict of interest to declare.

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Biographical note

Dejan Zemljak, PhD, is an assistant professor at the Faculty of Natural Sciences and Mathematics at the University of Maribor. His research is mainly focused on the field of engineering and technology education and related topics, such as the development of technological and engineering literacy, practical learning and the development of motor skills, etc. His research interests also include the integration of digital technology, robotics and artificial intelligence in education, as well as environmental issues and the intersection of education, digital technology and environmental protection.

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Preparing Teachers for Inclusive Education: Pre-Service Teachers' Knowledge, Perceptions and Experiences of Inclusive Pedagogy From Teaching Practice

Blandina Daniel Mazzuki[1]

Various scholars have questioned the effectiveness of teacher education programmes in preparing teachers for inclusive education. This study examines how teacher education programmes prepare pre-service teachers for inclusive education in terms of perceptions, knowledge and pedagogy. The study uses focus group discussions to examine pre-service teachers' knowledge of inclusive education and their experiences of inclusive pedagogy from teaching practice. The SACIE-R questionnaire tool assesses the perceptions of 187 pre-service teachers with regard to inclusive education. The findings indicate that pre-service teachers acquire theoretical knowledge with gaps in field-based knowledge that hinder their ability to link theory and practice, and to develop inclusive pedagogy. Moreover, pre-service teachers have a low level of sentiments and harbour many concerns and negative attitudes towards inclusive education. The findings of the study contribute insights that can inform the design and structuring of inclusive education courses in teacher education programmes.

Keywords: inclusive education, knowledge, pedagogy, perceptions, pre-service teachers

1 Faculty of Education, Dar es Salaam University College of Education (DUCE), Dar es Salaam, Tanzania; blandina.mazzuki@duce.co.tz.

Priprava učiteljev na inkluzivno izobraževanje: bodoči učitelji ter njihovo znanje, zaznave in izkušnje, vezane na inkluzivno pedagogiko, izhajajočo iz pedagoške prakse

Blandina Daniel Mazzuki

Številni raziskovalci so se že spraševali o učinkovitosti programov izobraževanja učiteljev pri pripravi bodočih učiteljev za inkluzivno izobraževanje. Ta študija preučuje, kako programi za izobraževanje učiteljev pripravljajo bodoče učitelje na inkluzivno izobraževanje z vidika zaznav, znanja in pedagogike. Študija uporablja razprave v fokusnih skupinah, da bi preučila znanje bodočih učiteljev o inkluzivnem izobraževanju in njihove izkušnje z inkluzivno pedagogiko iz pedagoške prakse. S pomočjo vprašalnika SACIE-R so ocenjene zaznave 187 bodočih učiteljev v povezavi z inkluzivnim izobraževanjem. Ugotovitve kažejo, da bodoči učitelji pridobijo teoretično znanje z vrzelmi v znanju iz prakse, ki jih ovirajo pri njihovi zmožnosti povezovanja teorije in prakse ter pri razvijanju inkluzivne pedagogike. Poleg tega imajo bodoči učitelji nizko stopnjo občutkov ter gojijo številne pomisleke in negativna stališča do inkluzivnega izobraževanja. Ugotovitve študije prispevajo spoznanja, ki lahko služijo kot podlaga za oblikovanje in strukturiranje predmetov inkluzivnega izobraževanja v programih izobraževanja učiteljev.

Ključne besede: : inkluzivno izobraževanje, znanje, pedagogika, zaznave, bodoči učitelji

Introduction

Inclusive education has become a key issue in the provision of education globally. In most cases, concerns surrounding the vital roles of teachers in the implementation of inclusive education in schools have been the topic of discussion. Given the central roles of teachers in the implementation of inclusive education, teacher education programmes are expected, inter alia, to equip teachers with perceptions, knowledge and teaching practices that include all learners in the classroom (Drushlyak et al., 2023**;** Moriña, 2020; Knežević, 2024; UNESCO, 2023). The importance of training teachers for inclusion is emphasised by the United Nations (UN) (2006) and the World Declaration on Education for All (WCEFA) (UNESCO, 1994). In essence, teacher education requires a proper framework for policies, curricula, pedagogy, assessment procedures and other rubrics to prepare teachers who have positive perceptions of inclusive education and are well equipped with inclusive knowledge and pedagogical practices. The available literature shows that the perceptions, knowledge and classroom practices of teachers are among the most significant factors for the effective implementation of inclusive education (Boyle et al., 2020; Kunz et al., 2021; Sharma et al., 2023; UNESCO, 2023). Thus, teacher education programmes should effectively prepare pre-service teachers by developing their positive perceptions, knowledge and skills for the effective implementation of inclusive education.

The Concept of Inclusive Education

As defined in the *Salamanca Statement*, inclusive education involves recognition of the need to work towards schools and classrooms for all, including every learner, and to celebrate differences, support learning and respond to individual needs (UNESCO, 1994). The term inclusive education refers to the kind of education that is offered by taking into account the diverse differences of learners, such as gender, race, ethnicity, religious beliefs, abilities, sexual orientation, social class, linguistic backgrounds and rural communities, as well as learners with disabilities and other learning challenges (Knežević, 2024; UNESCO, 2023). Inclusive education is founded on the idea that all learners have idiosyncratic characteristics, interests, abilities and learning needs. Thus, inclusive education is premised on the principle that learners with special educational needs must be treated equitably by being availed with learning services and facilities that match their needs in the general education system.

Inclusion in education has the potential to foster deeper learning among learners. Inclusion of learners results in learning gains, builds friendship skills

and peer models, develops problem-solving skills, builds a positive self-concept, and promotes respect between all students, with or without disabilities (Sharma et al., 2023). Inclusive education aims to change structures and content, including teacher education policies, curricula, pedagogy and assessment procedures, in order to remove barriers from educational settings (Chhetri et al., 2023; Losberg & Zwozdiak-Myers, 2021; Sharma et al., 2019; UNESCO, 2023). Education systems and programmes should therefore be designed to respond to the wide diversity of characteristics and needs of learners. Despite the importance of inclusive education in fostering learning, findings show that the majority of pre-service and in-service teachers have inadequate knowledge, skills and perceptions with regard to inclusive education (Chhetri et al., 2023; Sharma et al., 2019, 2023). According to Losberg and Zwozdiak-Myers (2021), teachers tend to lack effective strategies and techniques that are relevant to inclusive education. Furthermore, the lack of knowledge and skills, as well as the negative perceptions of teachers towards inclusive education, limit the ability of teachers to play their roles effectively as key implementers of inclusive education.

An Inclusive Education Knowledge Framework for Teacher Education

Inclusive knowledge is reflected in the curricula and courses for teacher education (Cretu, 2023; Sharma et al., 2019). Cretu (2023) suggests that inclusive knowledge for pre-service teachers must include psychological preparation, conceptions of inclusive education, and dimensions of learners' diversity. Pre-service teachers should learn how to support all students in the classroom in order to promote their theoretical, practical, social and emotional learning (Cretu & Morandau, 2020; Florian & Camedda, 2020). Other scholars point out that both theoretical and practical aspects are important for the effective implementation of inclusive education (Drushlyak et al. 2023; Hockings, 2010). Thus, pre-service teachers may conduct field-based learning by engaging in real-life tasks and self-directed learning, such as research work (McCracken et al., 2023).

Some studies show that practical activities such as experiential learning and teaching practice positively impact pre-service teachers' knowledge and views about inclusion in education (Walker, 2021). Practising inclusion develops pre-service teachers' ability to link theory and practice, thus enabling them to apply the acquired knowledge after their transition from college. Field-based learning enables pre-service teachers to solve various problems related to inclusive teaching, as it gives them a chance to reflect on their teaching actions and reconstruct their inclusive teaching knowledge (Dignath et al., 2022; Yang & Yu,

2021). However, there is research evidence indicating that pre-service teachers tend to have limited practical knowledge, which may impact the effectiveness of their inclusive teaching practices (Kunz et al., 2021; Sharma et al., 2023; Zabeli et al., 2021). As such, Zabeli et al. (2021) suggest that pre-service teachers should do more practice in an inclusive classroom and engage in field work in order to develop competence in inclusive teaching practices.

An Inclusive Pedagogy Framework for Teacher Education

In structuring inclusive pedagogy, there is a need to train pre-service teachers to identify and address the learning needs of all learners by creating a welcoming learning environment for all learners (Knežević, 2024; Losberg & Zwozdiak-Myers, 2021). Inclusive pedagogy requires teachers to apply a variety of teaching techniques, strategies and learning activities in the classroom (Florian & Black-Hawkins, 2011; Moriña, 2020). Inclusive pedagogy is guided by teachers' actions that are not pre-determined or planned, as teachers must respond to the diverse needs of learners. Unfortunately, various studies report that pre-service teachers do not get adequate orientation on inclusive pedagogical practices (David & Brown, 2022; McCracken et al., 2023). Moreover, David and Brown (2022) note that pre-service and in-service teachers are sometimes oriented towards inclusive education practices that do not function optimally in the teachers' specific contexts.

Pre-service teachers may grasp and master inclusive pedagogical practices if they engage in field-based learning under the guidance of knowledgeable teacher educators (Cotán et al., 2021; Drushlyak et al. 2023; Massouti, 2021; Walker, 2021). Field-based learning incorporates reflexive dialogue between teacher educators and pre-service teachers. Evidence from various studies indicates that field-based learning is an effective way of orienting pre-service teachers to inclusive teaching practices (Kunz et al., 2021; McCracken et al., 2023; Moriña, 2020; Walker, 2021). Field-based learning should be based on a cycle of knowledge creation in which teacher educators and pre-service teachers interact, reflect and challenge each other on inclusive thinking and practices.

Studies such as Drushlyak et al. (2023), Jiang et al. (2022) and UNESCO (2020) suggest that inclusive pedagogy should be integrated with digital technology to enable pre-service teachers to develop the ability to effectively teach students with diverse needs. Drushlyak et al. (2023) note that the use of digital technology in inclusive classrooms helps to balance the socialisation of learners with special needs in education. The use of digital tools, software and devices plays an important role in creating an inclusive classroom environment

by stimulating learners' curiosity and enhancing their participation, hence contributing to better learning and comprehension (Kaimara, 2023). However, technology is hardly used by teachers due to a lack of appropriate teacher education programmes, poor digital and technological infrastructure in schools, and poverty in low-income countries (David & Brown, 2022; Jiang et al., 2022; UNESCO, 2020). As well as orienting pre-service teachers on the use of digital technology in teaching, there is a need to equip them with assessment skills that enable them to meet the specific requirements of all learners. The assessment procedures used in schools are reported to be standardised and not in conformity with the diversity of learners in terms of its procedures and structure (Hanesworth, 2019; Zabeli et al., 2021). This underscores the need for inclusive assessment to be tailored in such a way that its procedures and structure do not marginalise some learners in the classroom (Gaunt et al., 2021; UNESCO, 2020). Pre-service teachers who are trained through inclusive courses that incorporate appropriate teaching strategies and assessment guidelines develop the ability to assess learners with diverse needs.

Pre-Service Teachers' Perceptions of Inclusive Education

The present study uses the Forlin et al. (2011) framework of perceptions, which includes the constructs of sentiments, attitudes and concerns. This framework, which has been used successfully in various contexts, fits the present study due to the fact that it was developed to identify pre-service teachers' perceptions of inclusive education. According to Forlin et al. (2011) and McCracken et al. (2023), sentiments explain pre-service teachers' acceptance of learners with different support needs, or their comfort levels when interacting with learners with disabilities. Pre-service teachers develop sentiments when they have regular contact with learners who have disabilities and diverse needs (Kunz et al., 2021).

The construct of concerns explains pre-service teachers' worries about inclusive education and can be influenced by the effectiveness of teacher education and frequent exposure to diverse classrooms during practical sessions (Sharma et al., 2019). Pre-service teachers who receive adequate inclusive knowledge and pedagogical orientation during their training tend to express fewer concerns than those who do not (McCracken et al., 2023). In essence, teachers with adequate knowledge and pedagogical skills have favourable attitudes and fewer concerns and worries with regard to inclusive education, and are able to implement inclusion successfully (Nijakowska, 2022).

The construct of attitudes towards inclusive education has attracted

more attention in research recently. However, research findings on this matter vary considerably, with some indicating positive attitudes and others negative ones. For instance, Guillemot et al. (2022) found progressively positive attitudes among pre-service teachers towards diverse learners' achievements, while other studies revealed poor progress of pre-service teachers' attitudes towards inclusive education (Chhetri et al., 2023; Kunz et al., 2021; McCracken et al., 2023). Various factors are reported to influence the attitudes of teachers towards inclusion, including the level of development, cultural differences, the existing policy and laws, and the organisation of the education system (Miesera & Gebhardt, 2018; Saloviita, 2015). Other relevant factors include the age of teachers, gender, the level of teaching, personal-related factors, the time dedicated to pre-service teachers' practice of inclusion, and personal contact with diverse students (Knežević, 2024; Kunz et al., 2021; McCracken et al., 2023). Guillemot et al. (2022) add that the availability of physical facilities and support from teacher educators influence pre-service teachers' development of attitudes towards inclusive education. Teachers' positive attitudes towards inclusive education have a significant influence on the success of inclusive education (Boyle et al., 2020; Chhetri et al., 2023, Kunz et al., 2021; Nijakowska, 2022).

Inclusive Education in Tanzania

In Tanzania, various strategies have been implemented, including the 2018–21 National Strategy for Inclusive Education, and the Partnership Compact 2021/22-2025/26 Towards Improved Inclusive Student-Based Teaching for Quality Learning (Ministry of Education, Science and Technology [MoEST], 2017, 2022). The strategies were aimed at defining and maintaining standards of curricula, pedagogy and environment to ensure all learners have access to quality education. In defining the standards of inclusive practices, the National Strategy for Inclusive Education was designed to strengthen the capacity of teacher training at all levels by developing teachers' capabilities and providing pedagogical support.

Following the demands of the improved curriculum, the University of Dar es Salaam, including the Dar es Salaam University College of Education (DUCE) campus, is teaching inclusive education courses (Tanzania Commission for Universities [TCU], 2019). DUCE offers two courses: the Psychology of Exceptionalities (EP 307), and Counselling and Special Need Education (EP 306). EP 307 is taken by third-year pre-service teachers pursuing a Bachelor of Education, while EP 306 is offered to third-year pre-service teachers studying for a Bachelor of Arts with Education (B. A-Ed) and a Bachelor of Science

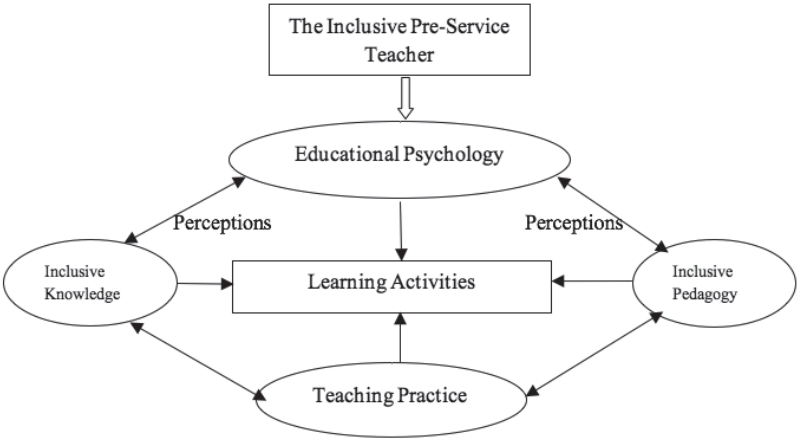
with Education (B. Sc-Ed). In addition, pre-service teachers take pedagogy and methodology courses that are related to their subjects of specialisation. Studies indicate that orienting teachers towards inclusive education practices has been a challenge in Tanzania (Kisanga & Richards, 2018; Milinga et al., 2023; Westbrook & Croft, 2015). Hence, the ability of Tanzanian teachers to practise inclusive education in their classrooms remains weak (MoEST, 2017) and is associated with negative inclusive practices (Kisanga & Richards, 2018). Furthermore, Westbrook et al. (2018) found that teachers were using random inclusion practices due to contextual, attitudinal, structural, pedagogical and curricular barriers.

Conceptual Framing Model

The study employed a modified version of Cretu's (2023) conceptual model of incorporating inclusive education in the curriculum for initial teacher education. The model has six elements, as shown by Figure 1.

Figure 1

An infusion-based approach for embedding inclusive education in the curriculum for initial teacher education (Cretu, 2023)



The model postulates six components of inclusive teacher education: educational psychology, inclusive knowledge, inclusive pedagogy, learning activities, perceptions and teaching practices. The pre-service teacher preparing to teach inclusively is taught educational psychology courses that cover, inter alia, the conceptualisation of inclusive education and the diverse needs of

learners. These courses are intended to develop inclusive knowledge and inclusive pedagogy among pre-service teachers through learning activities. Learning activities are based on educational psychology, inclusive knowledge, inclusive pedagogy and inclusive teaching practices. Pre-service teachers' perceptions (sentiments, concerns and attitudes) are influenced by their inclusive knowledge and pedagogical skills.

Purpose and Research Questions

There has been a call for more research on the effectiveness of teacher education in preparing teachers for inclusive education (Chhetri et al., 2023; Kunz et al., 2021; Losberg & Zwozdiak-Myers, 2021; McCracken et al., 2023; Sharma et al., 2023). The present study examines the preparation of pre-service teachers for inclusive education in terms of inclusive knowledge, pedagogical skills and perceptions. Pre-service teachers develop inclusive pedagogical skills as they experience teaching during their teaching practice in actual school contexts. The study sought to answer the following research questions:

1. What knowledge do pre-service teachers have on inclusive education?
2. What are pre-service teachers' experiences of inclusive pedagogy from teaching practice?
3. How do pre-service teachers perceive inclusive education?

Methods

Participants

The study was conducted at the University of Dar es Salaam (UDSM), which was purposefully selected from government universities that train teachers, as it is the oldest and largest public university in Tanzania. From its three campuses that train teachers, Dar es Salaam University College of Education (DUCE) was conveniently selected. At DUCE, a sample of 187 pre-service teachers was selected randomly from a population of 348 third-year students taking bachelor degrees in education. This sample size was based on the Statistical Power Analysis sampling procedure at a confidence level of 95% and a margin of error of 5%. Random sampling is regarded as the best way of sampling for inclusive and special education (Rumrill et al., 2020). Third-year (B. Ed) pre-service teachers were selected because they were in their final year of study and were enrolled in the inclusive course of Psychology of Exceptionalities (EP 307) as well as taking more pedagogical courses compared to B. A-Ed and B. Sc-Ed programmes.

Instruments and Procedures

The study used the Inclusive Education-Revised Scale (SACIE-R) questionnaire tool by Forlin et al. (2011) to examine the perceptions of 187 pre-service teachers on inclusive education. A total of 177 questionnaires were completed and returned. The SACIE-R scale internal reliability measured in this study indicated three subscales of sentiments (α = .78), attitudes (α = .89) and concerns (α = .87). Each subscale had five items, making a total of 15 items. The tool is measured in a four-level Likert scale of 1 = *Strongly Agree*, 2 = *Agree,* 3 = *Disagree*, and 4 = *Strongly Disagree*. Furthermore, 36 pre-service teachers were conveniently selected from the random sample to participate in Focus Group Discussions (FGDs). The data from the questionnaires were analysed using the Statistical Package for Social Science (SPSS) version 26. Descriptive data, including mean, median and standard deviation, were obtained to determine the pre-service teachers' perceptions of inclusive education with regard to the aspects of sentiments, attitudes and concerns. The interpretation was based on a decisive factor of 2.5, whereby means below 2.5 indicate agreement and above 2.5 indicate disagreement with regard to the three aspects. In addition, the recorded data from the FGDs were transcribed verbatim and imported into MAXQDA software. With the help of MAXQDA, the FGD data were grouped into similar themes and then analysed based on the research questions of the study.

Research Design

This study involved pre-service teachers pursuing a Bachelor of Education (B. Ed) who were in their third and final year of study and were taking an inclusive education course entitled Psychology of Exceptionalities (EP 307). The selection of these pre-service teachers was based on the premise that they had taken other pedagogical courses apart from EP 306, which might have influenced their inclusive pedagogical practices. The study employed both quantitative and qualitative methods. The quantitative methods were used to analyse the pre-service teachers' perceptions of inclusive education, while the qualitative methods were used to examine their inclusive knowledge and experiences of inclusive pedagogy from teaching practice. The data were collected during the 15th week of the pre-service teachers' final semester. The timing of the data collection process was deliberately planned to enable the researcher to examine what the pre-service teachers had achieved in terms of knowledge and perceptions, as well as their inclusive pedagogy experiences from teaching practice. Six FGDs were conducted, each involving six participants and with a duration of 60–80 minutes.

Results

Inclusive Education Knowledge Among Pre-Service Teachers

The findings obtained from the FGDs revealed that the pre-service teachers surveyed had an understanding of inclusive education and defined it as education that includes all learners in the classroom despite differences such as sex, disabilities, speech disorders, learning difficulties, giftedness, etc. The participants' added that inclusive education is education that includes all students regardless of their diversity. However, the findings of the FGDs indicated that the inclusive knowledge acquired by the pre-service teachers is more theoretical than practical and covered only a few aspects of learners' diversity. During the FGDs, one pre-service teacher stated that:

> What is taught is too little compared to the reality of learners' diversity in school settings. Learners' needs are widely diverse, but the course focuses more on disabilities than on other diversity aspects such as gender, culture, ethnicity, gifted, learners with learning difficulties and so forth. (2FGDs-PST 3)

Another pre-service teacher added that:

> The course has not adequately prepared us to implement inclusive education, as it is more theoretical than practical. We studied the course in the final year of our programme and we did not get the opportunity to put into practice what we learned in the real classroom context. (5FGDs-PST 1)

The participants added that they were not exposed to practical learning and argued that, since they took the inclusive course in their final year of study, they were not able to link theory and practice during their teaching practice. They therefore suggested that inclusive courses should be taken from the first year to the third year, in order to give pre-service teachers more opportunities to practise inclusive teaching in real classroom contexts. In one FGD, one of the pre-service teachers commented, "…there is a need for inclusive education courses to be taught throughout the programme from the first to the third year, and it should be compulsory in all programmes". (1FGDs-PST 4)

Pre-Service Teachers' Experiences of Inclusive Pedagogy From Teaching Practice

During the FGD sessions, the participants were asked about their experiences of inclusive pedagogy from teaching practice. Several of them stated that they faced various challenges in teaching learners inclusively. Despite the assistance they received from their host teachers in identifying learners who had learning problems, the majority of the participants reported that they failed to identify learners with learning challenges. One of the pre-service teachers in an FGD made the following comment regarding this issue:

> During my second-year teaching practice, I met a student who was hard of hearing. It was difficult for me to identify the student as a student with special needs until the other students told me about him. It was difficult for me to explain the concepts I was teaching, as my inclusive teaching skills were limited. (5FGDs-PST 1)

In addition, the participants reported that they faced a challenge caused by the placement of students in classes based on their academic abilities. Gifted students and learners with learning difficulties were placed in different classes, as one of the pre-service teachers affirmed by saying, "I think categorising learners into classes according to their abilities is against inclusive education. In inclusive education, all learners are supposed to learn in one class regardless of the differences in their abilities" (1FGDs-PST 4). The participants said that they faced challenges in teaching gifted learners separately from those with learning difficulties because they did not have the pedagogical skills to teach these specific groups. Moreover, the findings from the participants showed that pre-service teachers face a challenge in assessing learners with disabilities. This was elaborated by one of the pre-service teachers in an FGD:

> Assessment practices should consider learners' diversity. I met a visually impaired learner during my first-year teaching practice and it was difficult to give him the same test given to other students, which consisted of matching items, since visually impaired learners find it difficult to solve matching items tests. (2FGDs-PST 6)

However, some of the participants reported positive inclusive experiences: they used drawings and diagrams for hearing impaired students, voices recorded on their mobile phones for the visually impaired students, and repetition and extra time for learners with learning difficulties. The participants added that they used demonstrations to engage hearing-impaired students and recorded voices to engage visually impaired learners. In addition, the participants

reported the use of real objects available in the school environment, as elaborated by a pre-service teacher who was teaching Geography: "[…] during my teaching practice, I used real objects in the class to teach students soil texture to ensure that a visually impaired learner was fully engaged in the lesson" (6FGDs-PST 6). Another pre-service teacher added, "I exposed learners to learning in a natural environment when I was teaching parts of a flower (biology subject) in order to engage the hearing-impaired learners in my class" (4FGDs-PST 3). However, the participants said that their inclusive teaching practices were hindered by a shortage of teaching and learning facilities, inadequate digital and ICT devices, and crowded classes.

Pre-Service Teachers' Perceptions of Inclusive Education

The pre-service teachers' perceptions of inclusive education with regard to the aspects of sentiments, attitude and concerns are indicated in Table 1.

Table 1

Pre-service teachers' perceptions of inclusive education

	Sentiments (α = .78)	**Attitudes** (α = .89)	**Concerns** (α = .87)
N	177	177	177
Mean	2.16	2.84	2.12
Median	2.10	3.20	2.00
Std Deviation	.67	.68	.62
Minimum	1.00	1.00	1.00
Maximum	4.00	4.00	4.00

The findings in Table 1 indicate an average sentiments score of 2.16, a median of 2.10 and an *SD* of .67 below the decisive factor of 2.5 criterion mean and median for the 4-point Likert scale. This implies that the majority of the pre-service teachers surveyed have a low level of sentiments and a low comfort level when interacting with diverse learners. The pre-service teachers are predominantly uncomfortable looking learners with disabilities straight in the face and even less comfortable with the prospect of having disabilities themselves, as Table 2 below indicates.

Table 2

Pre-service teachers' sentiments of inclusive education by items

Sentiments	*N*	Min.	Max.	Mean	Std Dev.
I find it difficult to overcome my initial shock when meeting people with severe physical disabilities	177	1	4	2.11	.84
I am afraid to look a person with a disability straight in the face	177	1	4	2.08	.99
I tend to make contacts with people with disabilities brief and I finish them as quickly as possible	177	1	4	2.18	.91
I would feel terrible if I had a disability	177	1	4	2.12	.96
I dread the thought that I could eventually end up with a disability	177	1	4	2.33	.93
Valid N (listwise)	177				

Regarding concerns about inclusive education, the findings indicate an average score of 2.12, a median of 2.00 and an *SD* of .62, which means that the majority of the pre-service teachers surveyed have many concerns and a high level of distress regarding inclusive education. The pre-service teachers have more concerns about not having the knowledge and skills required to teach students with disabilities and fewer concerns about students with disabilities being accepted in their classes, as Table 3 indicates.

Table 3

Pre-service teachers' concerns about inclusive education by items

Concerns	*N*	Min.	Max.	Mean	Std Dev.
I am concerned that my workload will increase if I have students with disabilities in my class	177	1	4	2.11	.69
I am concerned that it will be difficult to give appropriate attention to all students in an inclusive classroom	177	1	4	2.20	.81
I am concerned that I will be more stressed if I have students with disabilities in my class	177	1	4	2.29	.74
I am concerned that students with disabilities will not be accepted by the rest of the class.	177	1	4	2.36	.76
I am concerned that I do not have the knowledge and skills required to teach students with disabilities.	177	1	4	1.67	.89
Valid N (listwise)	177				

Regarding the pre-service teachers' attitudes towards inclusive education, the findings indicate an average score of 2.84, a median of 3.20 and an *SD* of .68. This means that the majority of the pre-service teachers had negative

attitudes towards inclusive education. They mainly disagree with the inclusion of students who have difficulty expressing their thoughts verbally in regular classes, and fewer negative attitudes towards having students who frequently fail exams in regular classes, as Table 4 indicates.

Table 4

Pre-service teachers' attitudes towards inclusive education by items

Attitudes	*N*	Min.	Max.	Mean	Std Dev.
Students who have difficulty expressing their thoughts verbally should be in regular classes	177	1	4	3.22	.91
Students who frequently fail exams should be in regular classes	177	1	4	2.63	.87
Students who need an individualised academic programme should be in regular classes	177	1	4	2.83	.86
Students who are inattentive should be in a regular classes	177	1	4	2.78	.75
Students who require communicative technologies (e.g., Braille and sign language) should be in regular classes.	177	1	4	2.72	.76
Valid N (listwise)	177				

Discussion

The findings indicate that pre-service teachers are able to define inclusive education correctly, but that they have inadequate knowledge of inclusive education, confined to a few aspects of learners' diversity. Moreover, the knowledge they possess is more theoretical than practical. The inclusive course is offered to pre-service teachers during the final year of study, so they do not have an opportunity to apply their knowledge during teaching practice. These findings are consistent with the findings of various studies indicating the failure of teachers to implement inclusive education due to limited knowledge (Chhetri et al., 2023; Sharma et al., 2019, 2023). Other studies with similar findings have reported on the failure of teacher education programmes to effectively connect the theoretical and practical aspects of learning (Kunz et al., 2021; Sharma et al., 2023; Zabeli et al., 2021). The findings underscore the role of inclusive education courses in teacher education programmes to prepare teachers for inclusive education. Inclusive education courses should be improved by incorporating the theoretical and practical requirements in a balanced manner. Moreover, there is a need to teach inclusive education courses by using practical and field-based learning strategies. In field-based learning, pre-service teachers are closely

guided by their teacher educators to ensure that they gain practical knowledge of inclusive education. Considerable research indicates that teaching inclusive courses by using field-based study equips pre-service teachers with practical knowledge and positively shapes their perceptions towards inclusive education (Cotán et al., 2021; Dignath et al., 2022; Drushlyak et al., 2023; Hockings, 2010; Walker, 2021; Yang & Yu, 2021).

The findings on pre-service teachers' experiences of inclusive pedagogy during teaching practice conducted in their first and second years of study indicate that they faced various challenges. The participants reported that it was difficult for them to identify the diverse needs of learners, to teach students with diverse needs placed in separate streams, and to assess students who have disabilities. Miesera and Gebhardt (2018) and Saloviita (2015) note that any education system that separates streams and classes for learners with special educational needs undermines the implementation of inclusive education. Similarly, standardised assessment procedures and structure in schools do not accommodate learners' diversity (Hanesworth, 2019; Zabeli et al., 2021). It is likely that pre-service teachers face teaching challenges due to limited inclusive knowledge, as reported in the present study. Similarly, pre-service teachers may face challenges due to inadequate field-based learning, as inclusive teaching skills are developed through field-based learning (Cotán et al., 2021; Drushlyak et al. 2023; Hockings, 2010; Massouti, 2021; Moriña, 2020; Walker, 2021). In order to effectively equip pre-service teachers with inclusive pedagogical skills, there is a need for inclusive education courses to be offered on a continuous basis, from the first to the last year of study. This gives pre-service teachers an opportunity to develop inclusive pedagogy practices, as also suggested by Dignath et al. (2022), Drushlyak et al. (2023) and Yang and Yu (2021). As well as offering prolonged learning, inclusive courses should address the identification of learners' diversity and incorporate fundamental aspects such as assessment procedures and structures that do not marginalise learners in the classroom. Inclusive education courses that incorporate teaching strategies and assessment guidelines develop the ability of pre-service teachers to assess learners with diverse needs (Gaunt et al., 2021; UNESCO, 2020).

Despite the challenges encountered by pre-service teachers during their teaching practice, some of the surveyed pre-service teachers were able to include learners using the knowledge acquired from pedagogical courses. However, they were limited by a shortage of teaching facilities and technological devices. Some of the pre-service teachers used their mobile phones to record audio to reach all learners, as well as using demonstrations, real objects and the real environment. The shortage of teaching facilities and technological devices

has been a challenge to inclusive teaching, especially in low-income and poor countries (David & Brown, 2022; Jiang et al., 2022; UNESCO, 2020). Sometimes, pre-service teachers are required to understand that the challenges they encounter are professional challenges that require them to find alternatives and solutions, such as using their mobile phones to teach and using the teaching resources available in the context. When pre-service teachers learn how to use technology in teaching, they are able to balance the socialisation of learners (Drushlyak et al., 2023) and create an inclusive classroom environment by stimulating learners' curiosity and engagement (Kaimara, 2023; UNESCO, 2020).

The study findings reveal that the majority of pre-service teachers have negative perceptions of inclusive education regarding their sentiments, concerns and attitudes. The questionnaire items indicate that the majority of pre-service teachers are uncomfortable looking at learners with disabilities straight in the face and are concerned about not having the knowledge and skills required to teach inclusively. The low level of sentiments and many concerns reported by the pre-service teachers might be due to the inadequacy of their inclusive knowledge and the lack of opportunities to engage in field-based learning. Similar findings on pre-service teachers' low level of sentiments have been reported by Kunz et al. (2021) and Yang and Yu (2021), while similar findings on the many concerns about inclusive education have been reported by Nijakowska (2022) and Sharma et al. (2019). Pre-service teachers' inclusive knowledge and clear understanding of inclusive education has an influence on their sentiments and the level of their concerns regarding inclusive education (Kunz et al., 2021; McCracken et al., 2023; Nijakowska, 2022; Sharma et al., 2023). Again, regular exposure of pre-service teachers to field-based learning and contact with diverse students in real classroom contexts increases their sentiments and reduces concerns regarding inclusive education (Cretu, 2023; McCracken et al., 2023; Moriña, 2020; Walker, 2021).

The findings on pre-service teachers' negative attitudes towards inclusive education reported in the present study corroborate various studies that show that pre-service teachers tend to have negative attitudes towards inclusive education (Chhetri et al., 2023; Losberg & Zwozdiak-Myers, 2021; McCracken et al., 2023; Westbrook et al., 2018). The revealed negative attitudes of pre-service teachers towards inclusive education are likely to be due to inadequate inclusive knowledge and less engagement in field-based learning during teacher training. Previous studies indicate that exposing pre-service teachers to field-based learning enables them to develop positive attitudes towards inclusive education (Dignath et al., 2022; McCracken et al., 2023; Walker, 2021). Another reason for pre-service teachers' negative attitudes towards inclusive education lies in

the system of secondary education in Tanzania, which separates gifted learners from learners with learning difficulties. Any education system that separates schools or classes for learners with special educational needs affects pre-service teachers' attitudes towards inclusion (Miesera & Gebhardt, 2018; Saloviita, 2015). Correspondingly, pre-service teachers' experiences of practising teaching in schools where classrooms are overcrowded and teaching resources are limited may influence their attitudes. According to Guillemot et al. (2022) and Miesera and Gebhardt (2018), the availability of teaching and learning resources in the classroom influences pre-service teachers' attitudes towards inclusive education.

Conclusion and Implications

Based on the findings, the study concludes that pre-service teachers are not adequately prepared for inclusive education due to inadequate acquired knowledge, insufficient experiences of inclusive pedagogy during their teaching practice, and negative perceptions of inclusive education. The underlying reasons for this are related to the lack of rounded training of pre-service teachers with regard to inclusive education, including the identification of learners' diverse needs, as well as the system of separating students with different abilities, the poor assessment structure and inadequate field-based learning. As indicated in the conceptual framework, pre-service teachers' inclusive knowledge, pedagogy and perceptions influence one another. Inclusive education courses should incorporate learning activities with educational psychology, inclusive knowledge, pedagogy, perceptions and teaching practice sessions for the effective preparation of pre-service teachers to teach inclusively. The more pre-service teachers understand inclusive education, the more they are likely to have inclusive pedagogical practices, a high level of sentiments, fewer concerns and positive attitudes towards inclusion, which will lead to the successful implementation of inclusive education.

The conclusions have implications on how inclusive education courses in university teacher education programmes should be designed and structured to integrate important elements. The key elements can include a holistic understanding of inclusive education knowledge, which covers psychology, a clear conception of inclusion and dimensions of learners' diversity (Cretu, 2023; Cretu & Morandau, 2020; Florian & Camedda, 2020). In order to encourage inclusion, it is necessary to integrate field-based learning and prolonged learning of inclusive courses (Dignath et al., 2022; Knežević, 2024; Kunz et al., 2021; McCracken et al., 2023; Sharma et al., 2023; Walker, 2021), a favourable

classroom teaching environment (David & Brown, 2020; Guillemot et al., 2022; Jiang et al., 2022; UNESCO, 2020) and favourable education policies (Miesera & Gebhardt, 2018; Saloviita, 2015). The present study contributes insights to the existing knowledge on structuring inclusive education courses in preparing pre-service teachers for inclusive education. However, the study focused on a small number of pre-service teachers, so research covering a larger population of pre-service teachers is recommended.

Disclosure Statement

The author has no conflict of interest to declare.

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Biographical note

Blandina Daniel Mazzuki, PhD, is a lecturer in the field of teacher education in Faculty of Education at Dar es Salaam University College of Education (DUCE) which is a constitute college of the University of Dar es Salaam in Tanzania. She is teaching teacher education curriculum and pedagogy courses. Her research interest includes pre-service and in-service teachers' professional learning and development, curriculum, pedagogy and classroom interaction.

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Rethinking Pedagogy in Higher Education Amid Turbulent Times

Márta Katalin Korpics*[1] and Andrea Bajnok[2]

Global challenges (labour market expectations, digital technology, the massing of higher education) are constantly changing the way higher education is managed. Responses to change can be planned. Responses from higher education stakeholders can be interesting and instructive for other institutions, as these examples can be incorporated into their own responses. The purpose of the study is to present the top-down pedagogical reform process that started in 2019 at the University of Public Service in Budapest. Although initiated by the university's educational strategy, its implementation depends on the teachers who have actively created innovative pedagogical spaces that ensure sustainability. These innovative spaces include training sessions for teachers, workshops, thematic discussions on teaching methodology, methodological publications, research and the annual Innovative Department Award. The stages of the process and the results and challenges of each stage were documented using a case study method. The description helps to illustrate how a process of pedagogical reform, with which the university leadership's goal is rapid, systemic change affecting the work of hundreds of teachers, can be developed and sustained on the basis of commitment from teachers and institutional determination.

Keywords: higher education, pedagogical changes, institutional development

1 *Corresponding Author. Ludovica University of Public Service, Budapest, Hungary; Korpics.Marta.Katalin@uni-nke.hu.
2 Ludovica University of Public Service, Budapest, Hungary.

Ponovni razmislek o pedagogiki v visokem šolstvu v turbulentnih časih

Márta Katalin Korpics in Andrea Bajnok

Globalni izzivi (pričakovanja trga dela, digitalna tehnologija, množičnost visokega šolstva) nenehno spreminjajo način upravljanja visokega šolstva. Odzivi na spremembe so lahko načrtovani. Odzivi visokošolskih deležnikov so lahko zanimivi in poučni za druge institucije, saj lahko te primere vključijo v svoje odzive. Namen študije je predstaviti proces pedagoške reforme od zgoraj navzdol, ki se je začel leta 2019 na Nacionalni univerzi za javne službe v Budimpešti. Čeprav se je proces reforme začel na podlagi izobraževalne strategije univerze, je njegovo izvajanje odvisno od učiteljev, ki so aktivno ustvarjali inovativne pedagoške prostore, ki zagotavljajo trajnost. Ti inovativni prostori vključujejo: usposabljanja za učitelje, delavnice, tematske razprave o metodologiji poučevanja, metodološke publikacije, raziskave in letno nagrado za inovativni oddelek. Faze procesa ter rezultati in izzivi vsake faze so bili dokumentirani z metodo študije primera. Opis pomaga ponazoriti, kako je mogoče proces pedagoške reforme, pri kateri je cilj vodstva univerze hitra sistemska sprememba, ki vpliva na delo več sto učiteljev, razviti in vzdrževati na podlagi predanosti visokošolskih učiteljev in institucionalne odločnosti.

Ključne besede: visoko šolstvo, pedagoške spremembe, institucionalni razvoj

Introduction

Labour market expectations, advances in digital technology and learning theories, and the growth in student numbers are forcing higher education institutions and their teachers to develop progressive organisational responses (Ferri et al., 2020; Halász, 2009; Kemelgor et al., 2000; Kezar et al., 2018, Niemi 2021; Ramírez-Hurtado et al., 2021).

During the Covid-19 pandemic, instead of the planned, comfortable implementation of the educational strategy, lecturers had to switch overnight to the use of online platforms and were forced to try out new teaching methods for which they were not prepared (Al-Naabi et al., 2021; Benenson et al., 2022). This experience made higher education stakeholders aware that the methodological development of academic teaching staff in line with European trends, as well as the creation of an institutional atmosphere that facilitates teachers' professional development, the collection and synergy of good practices, and the support of training and research, cannot be postponed any longer (Budevici & Puiu, 2020).

The objective of the present study is to illustrate the results that can be attributed to the activity of teachers in implementing an educational strategy that prescribes a reform process. The stages of the process and the outcomes and challenges of each stage were documented using a case study method, applying Kotter's (1996) eight-step model. Several examples of the application of Kotter's model in a higher education context can be found in the international literature (Calegari et al., 2015; Kang et al., 2020; Edge et al., 2022).

The case study begins with a general description of the context in which pedagogical change has taken place, outlining the reasons for the need for change, which has prompted methodological redesign not only in public service institutions, but also in higher education institutions in general. The methodology of the case study is then discussed. Finally, we summarise our experience and the lessons learned from the process described in the case study, including a list of obstacles to change.

Turbulent Times in Higher Education

Increasingly global trends such as globalisation, advances in information technology and leadership innovation (Cummings & Worley, 2015) are transforming the labour market, including the lives of those working in the civil service. These circumstances are pushing organisations and government actors to respond ever more quickly and to make sustainable operational changes. Civil servants are required to be able to manage the challenges of the twenty-first

century. Training institutions and lecturers in these institutions have a shared responsibility to use teaching methods that bring future civil servants closer to solving problems in the workplace.

The economic environment, funding, student and labour market expectations, technology and societal changes (e.g., student diversity) had already made higher education increasingly challenging before the pandemic (Edge et al., 2022). Changes at the organisational level have therefore not spared higher education (Budavici-Puiu, 2020; Kemelgor et al., 2000; Milutinović et al., 2023; Zgaga, 2021), such as the increasing impact of digitisation or the growth in student numbers (Sarda et al., 2023).

With the growth in student numbers and student diversity, it is increasingly challenging to maintain academic standards (Evans et al., 2021) and to provide the same methodology and the same quality of training to students in parallel groups (Sarda et al., 2023). Traditional lectures based on limited interaction might seem more comfortable, but an interactive environment leads to deeper, more effective learning. This encourages pedagogical innovations and standardisation by higher education actors at the international, national, institutional and faculty level (Bonwell & Eison, 1991; Silvia, 2012). Top-down incentive systems are becoming more common (Sarda et al., 2023), but the required changes often face obstacles (Rubaii, 2016).

An Innovative Response in Public Service Training

Nowadays, the question of how to teach public service and how to prepare students for the challenges of twenty-first century governance is becoming increasingly important (Elliott et al., 2023; O'Neill, 2022; Rubaii, 2016). The public service faces increasingly complex challenges, which require a paradigm shift in the classroom (Alford & Brock, 2014; Benenson et al., 2022; Brock & Alford, 2015). In civil service training, the questions of what to teach and how to teach it have perhaps never been more topical, while the teachers' hesitation is understandable, as they had to change suddenly and respond quickly during the Covid-19 pandemic. Change is not always viewed favourably by academics working in university structures that often reflect traditional Weberian governance structures (Rubaii, 2016).

The University Context

The process of change detailed in the present case study was conducted at the University of Public Service (UPS) in Budapest, which is a unique higher

education institution by international standards. Compared, for example, with the fragmented UK civil service training system (Elliott et al., 2023), the UPS offers a combination of law enforcement and military officer training, training for domestic and international public administration professionals, and training for water engineers, all with a strong inter-professional focus. Preserving the traditions of its predecessor institutions, the UPS commenced operation on 1 January 2012 as a hub of higher education for civil service professionals, in the hope of closer cooperation in education and research, and more efficient operation. In 2017, the Faculty of Water Management, which is also a predecessor institution, joined the university. The university currently has four faculties – Political Science and International Studies, Military and Defence Studies, Law and Order, and Water Sciences – and four doctoral schools, as well as a well-developed university infrastructure and campuses. In addition to teaching, particular attention is paid to research, and the university has several research centres. According to the statistics for autumn 2021, it has a total of 6,182 students and 824 teachers, 184 of whom are not full-time employees but are involved on a contractual basis.

The university published its strategic report, in light of the changes in its environment, in its Institutional Development Plan 2020–2025, which includes an education strategy aimed at a paradigm shift in pedagogy (teaching methodology, teaching). The Creative Learning Programme (hereafter: CLP, Programme) is a key element of the Education Strategy, which was developed in several steps and is currently under the leadership of the Vice-Rector for Education. The implementation of the CLP is guided by a concept and strategy approved by the university's leadership. The Action Plan, which is linked to the Strategy, sets out the actions to be taken to achieve the pedagogical paradigm shift over a four-year period. On the background of the strategies implemented, the following research questions have been formulated:

RQ1: Are the steps and outcomes of a top-down change management process consistent with Kotter's eight-step model?

RQ2: Is it possible to link outcomes to each step in the process?

Method

The research questions were addressed using a case study, which is a widespread and increasingly popular qualitative method (Breshlin & Buchanan, 2008; Csabai, 2018; Garson, 2002) with independent research relevance, focusing on the transition between theory and practice. As a research method, it belongs to the group of field research as a form of data collection (Babbie,

1989). The case study method is nowadays used in several disciplines, such as law, medicine, political sciences and pedagogy. A case study is an empirical examination of contextually specific cases (Stake, 1995). It is therefore important that the researcher using a case study is aware that, despite a strong theoretical framework, the same case study may have different messages for readers. While the findings presented in a case study are not to be generalised (Harland, 2014), many different cases often cover the same ground and convey similar messages.

A case study presents a real-life situation, providing information about a case that has happened in journalistic detail. Readers can put themselves in the shoes of the people involved in the case, reflecting on and analysing what happened, even drawing their own lessons. By its very nature, a case study is a descriptive and exploratory scientific method for identifying and situating a phenomenon in the literature (Breshlin & Buchanan, 2008).

Participants and Materials Used in the Research

The materials and information used in the present research were collected between May 2019 and May 2023, from the formulation of the problem, through the collection of information, to a detailed description of the steps and history of the reform process. All of the documents generated during the change process were collected in order to study the process. One set of data consisted of the institutional documents that generated the change process, i.e., strategic materials (Institutional Development Plan, Creative Learning Programme Strategy, Action Plan, Creative Learning Programme Concept) and the results of statistics, statements and surveys produced by the coordination unit. The documentation included minutes of meetings, reminders and various descriptions of events on the website of the institution under review. Minutes were taken of all of the meetings concerning the launch and running of the programme, and these documents were made available to the authors of the study. In January 2021, each department of the university delegated a lecturer to small group workshops, during which groups of 10–12 people shared good practices and formulated their needs for the programme. The process of change was also well documented on the programme's website, where documents on the organisational transformation (descriptions of departments, tasks) and website news on individual programme elements and events (workshop descriptions, introductory workshops of Innovative Department Award-winning departments, conference reports) were posted.

In the research, the results of the programme were evaluated not only based on the documents, but also through feedback from the participants and

trainers. The participants' views were gathered through an online feedback questionnaire, while face-to-face and online structured interviews were conducted with the trainers who delivered the workshops. In 2022, 82 responses were received from 127 participants, representing a 64% response rate. In 2023, the total number of participants was 172, of which 79 completed the questionnaire, representing a 46% response rate, while 80% of the trainers sent feedback on the workshops they had held.

Instruments

The data collection tools were documents that allowed the documentation and internal evaluation of the change process. These documents were evaluated and the information and facts contained in them were incorporated into the steps of the case study model. For data collection, materials uploaded on the website describing the functioning of the programme were available (introduction to the organisation, project presentation, concept, strategy, descriptions of workshops, descriptions of good practices). In addition, feedback questionnaires were used for data collection. After each workshop, a questionnaire with the same content was administered to the workshop participants, asking them about the usefulness and effectiveness of the training. Participants rated the training on a 4-point scale (where 1 was the worst and 4 the best) and a 7-point scale (where 1 was the worst and 7 the best, allowing for a more differential rating), according to the following questions: How useful was the training? Could you use what you learned in your field? To what extent did you develop your teaching skills? What teaching methodological ideas and suggestions did you consider important? In what other areas do you think you need methodological improvement? The results of the questionnaires were reported and included in the case study. Interviews were conducted with the trainers who delivered the training courses and workshops (individual and group structured interviews). The data collection tools were thus elements of the internal documentation produced during the programme and shared on the website. In addition, data were collected through questionnaires and interviews.

Research Design

The main focus of the research was the continuous monitoring and evaluation of the top-down pedagogical paradigm shift. The research followed the process of change from the moment the programme was launched and measured its success. In the first phase of the research, the strategic documents

needed to launch the programme were examined and evaluated. The research followed the implementation of the programme and the first results step by step. During the research, the implementation of the steps of the Kotter model were examined, which required a certain time lag, as its success could only be assessed retrospectively. The research examined the achievement of the objectives set out in the concept and the strategy, which was relevant not only from the researcher's point of view, but also from the point of view of the client (the management of the institution). This meant that all of the events that occurred during the change process were evaluated and the documents relating to them were examined and analysed. The assessment and analysis examined the fulfilment and effectiveness of the project elements set out in the programme concept. The research was closed on a provisional basis, evaluating partial results, as the process of change is still ongoing. The concept defined a four-year timeframe for the implementation of the programme, ending in December 2024.

Results

In presenting the results of the pedagogical reform process, we will highlight the steps that can be found in Kotter's model, which illustrate that a top-down strategy can only be successful through the activism of community members in creating innovative spaces. The changes can be described according to a number of models (Goodman, 1982; Cummings & Worley, 2015). The case is described using Kotter's (1996) eight-step model, which is one of the best-known and most frequently cited and applied models (Wentworth & Behson, 2020). According to Kotter, the change process consists of several successive steps, which are not interchangeable and take a considerable amount of time. In any step, a critical error can be made that causes unforeseeable damage to the change process. The implementation of these steps is a prerequisite for the success of the change process. The first step in the change model is to create a sense of urgency, followed by the development of strong coalitions. The third and fourth steps are to create and communicate a vision. The fifth step is to empower others to act on the vision. This is followed by planning and implementing short-term successes, and, in step seven, consolidating improvements and creating more change. Finally, the last step is to institutionalise new approaches (Kotter, 1996).

The results of the research are presented based on the eight steps of the Kotter model, showing the recommendations made in each step and how they are met.

Establishing a Sense of Urgency. In May 2019, an Education Reform Workshop was set up at the university to prepare the ground for a comprehensive

modernisation of the content and methodology of training programmes. The workshop was attended by the Vice-Deans, ten faculty members of the Faculty of Political Sciences, representatives of the student council and external experts. As a result of joint reflection, a strategic concept with visions and proposals for the modernisation of the content and methodology of the teaching portfolio was developed. Following the preparatory work, the university's Institutional Development Plan 2020–2025 aimed at a paradigm shift in pedagogy (teaching, teaching methodology). The plans for change were therefore included in the document that defines the university's operations. Through the Reform Workshop and its members, discussions and debates on pedagogical change were initiated at the university.

Forming a Powerful Guiding Coalition. The change management team was appointed in several steps. As a first step, the Vice-Rector for Development, who is responsible for the implementation of the CLP, set up a team of experts composed of university and faculty-level delegates at senior management level (Vice-Deans of Education) and other experts (Quality Commissioner, Student Council, methodological experts). As of February 2020, the supervision of the CLP was entrusted to the Vice-Rector for Education, who, as in the past, sought to involve stakeholders. The initial organisational structure was replaced by two departments, a Working Group and a Research Workshop. The Working Group was composed of delegates from each faculty and the Student Council, thus ensuring the involvement and influence of each department. The main task of the Working Group was to develop the CLP strategy and to implement the identified objectives as a project stream. The implementation started under difficult circumstances, as the formation of the Task Force and the whole planning period, except for a few months, coincided with the second wave of the Covid-19 pandemic, which tested the personal contacts, the organisation and implementation of the programmes, and the achievement of the short-term objectives. The Task Force had a staff of five. The team prepared and organised the programmes, acted as a contact point for participants, and produced analyses and reports on the programmes for the Task Force and the Research Workshop. In spring 2022, a new department was created within the Rector's Office, called the Creative Learning Office (CLO), which, alongside the previous teams, is responsible for the day-to-day coordination and implementation of the Programme.

Creating a Vision. The CLP's own strategy had to be aligned with the institution's previous strategy. The university's strategy sets out four directions for the university: the Education Strategy, the Research and Development Strategy, Strengthening Community (Organisational) Performance, and the Individual

Performance Principle. The Education Strategy is the flagship programme of the CLP, which the strategy document describes as a pedagogical turn that sees the essence of education as "the effective development and assessment of student capabilities, the mentoring of individual learning pathways, and the cultivation of active, creative professional communities based on personalities" (IFT, 2020, 35). The objectives set out are also very specific to the educational arena: the ideal of community learning–creation–individual development; the ideal of the teacher leading collaborative learning and mentoring individual creative work; and small group training rather than mass teaching. The achievement of all three objectives strongly presupposes teacher activity involvement.

Communicating the Vision. According to Kotter's model, the change process should involve all members of the organisation, and it is necessary to discuss the vision of change with the agents of change and the organisational teams. The essential elements of communication are external and internal communication. The internal public should be given the opportunity to discuss the changes and learn about the results achieved in the meantime. This is done through regular online conferences and workshops. There were two conferences and three workshops in 2021; one conference and two workshops as well as two Professional Training Days were held in 2022; while one Professional Training Day, one conference, one workshop and a number of other events took place in 2023. In addition, leaders (heads of department and senior university leaders) participated in several workshops to discuss strategy and future goals. External publicity (participation in Hungarian and international conferences and regular publication activities) provides an insight into the educational work of the university, thus increasing the visibility and image of the institution at home and abroad. In addition, communication is regularly provided in written form in newsletters through internal university media channels, while the university community can also learn about the events of the Programme through the university TV on YouTube. The Programme has a dedicated interface within the university's website for sharing information and communicating results.

Empowering Others to Act on the Vision. In 2021, the Education Network was established (with delegates from each faculty) and training for the Network's faculty members was launched. In 2022, an Advisory Network was also established, with faculty delegates to support the transformation work at the university and in their own faculties. The Creative Learning Programme, as described above, is the engine of transformation, but no single unit is sufficient to fully implement change. To be eligible for the 2021 Innovative Department Award, the department had to demonstrate its training activities, teaching methodology innovations and innovative efforts to other teachers. These

training sessions, presentations and workshops are a very good platform for joint activities and the involvement of individual departments.

Planning for and Creating Short-Term Wins. The project, which is laying the foundations for a paradigm shift in pedagogical teaching methods, was launched in January 2021. The first year was very successful in terms of programmes implemented and results achieved. The organisation and delivery of the first university-wide and mobilising programmes, and the publication of the results of these programmes, were carried out at an exemplary pace. The first public result was the collection of good practices from the university, which were then used in various fora. These good practices provide insights into the individual teaching activities and experiences of lecturers and serve as a model for other lecturers. Both conferences were followed by workshops, the first of which was attended by members of the Teacher Network, who shared their departmental experiences and needs, while thirteen good practices were presented by invited teachers at the second workshop. A stand-alone workshop in November 2021 presented the results of 2021 and invited external speakers to share their own teaching experiences. In the autumn of 2021, a sub-programme called the Service Basket was successfully launched, offering a range of training courses to help university lecturers to learn innovative, creative teaching methods and develop their skills. The content of the Service Basket is constantly being developed and expanded with the addition of new good practices, and any faculty member of the university can offer a 'product' to this basket (Méhes & Korpics, 2022). A total of 18 departments have applied for the Innovative Department Award so far. The aim of the competition is to evaluate and encourage those departments and teachers who use creative methods and practices in their teaching. The prize is awarded each academic year by a dedicated panel. As an indication of the complexity of the programme, the departments that win the Innovative Department Award participate in the expansion of the content of the Service Basket by organising their own programmes, training courses and workshops. In the first year, a glossary was created to support the development of the glossary of vocabulary articles that have been brought within the scope of the Programme. In addition, two university research projects have been launched under the Programme and will be accompanied by further research (research on digital competences, research on teaching competences, focus group studies of teachers and students).

Consolidating Improvements and Producing Still More Change. Successful programmes from the first year will continue to be advertised. The university leadership strongly supports CLP and is committed to the paradigm shift. This is evidenced by the establishment, after a two-year preparatory period, of

a department tasked with providing pedagogical and educational support to the reform process, the ongoing organisation and coordination of programmes, and the monitoring of changes in educational methodology through action research and communicating results. The Research Workshop is currently conducting a number of research projects, the results of which will help to sustain the programme. The strong organisational hierarchy, which is also associated with the training portfolio, is seen as an advantage in terms of perseverance and determination. In addition to strong leadership support, the interviews with and feedback from teachers indicates that they consider the training and events organised by the CLP to be very useful and important. The number of lecturers participating in the workshops and training sessions organised in parallel regularly exceeds one hundred. The Office for the Organisation of Innovative Spaces (CLO) has become a member of the Hungarian Network of ICT Centres, and several publications (Bajnok & Korpics, 2023; Hegedűs & Fekete, 2023) and conference presentations show the developments and results of the university. In addition, in autumn 2023, the Handbook on Methodology was published (Korpics et al., 2023), which helps teachers by offering a detailed presentation of several interactive, innovative methodologies. Mentoring has started at several levels and is planned to continue in 2024. In response to the needs of the teaching staff, the Service Basket offer is continuously being developed (Korpics & Méhes, 2022). Every year, the university's teaching staff can participate in the Professional Training Days programme, and from spring 2023, there have been training courses for specific groups of professions or departments. A related new initiative will target training for administrative staff. The university community will be informed of methodological events via a monthly newsletter, which will support the dissemination of the Programme.

Institutionalising New Approaches. The last step is the real challenge for an organisation, as the task is nothing less than to achieve further change and embed new solutions in the organisation. The development process has defined a four-year project period, during which progress will be made according to the action plan prepared for the strategy. As the process of change and development is ongoing, we have doubts and hopes rather than concrete results for the last step. A paradigm shift in pedagogy can only be achieved if the majority of educators are committed to change as a result of the operation of the innovative spaces listed above.

Discussion

Higher education institutions, like other organisations, undergo constant changes (Halász, 2009; Kemelgor et al., 2000; Kezar et al., 2018). The advent of digital education from 2019 to 2021 accelerated this process in an immediate and urgent manner, deviating from the usual comfortable steps. Despite the difficulties, this period underscored the need for a comprehensive paradigm shift in higher education institutions. This shift entails focusing on the methodological development of educators and support for the change process through training, good practices and research (Budevici & Puiu, 2020). Initiating change requires not only top-down commitment, but also the dedication of the educator community (Bonwell & Eison, 1991). Preparing young individuals for public service demands a revised methodology, recognising that new challenges necessitate innovative approaches (Alford & Brock, 2014; Brock & Alford, 2015).

In the era of globalisation, public service education must introduce new methodologies to enhance preparedness for a career in public service facing complex challenges (Elliott et al., 2023; O'Neill, 2022; Rubaii, 2016). The response to the intricate challenges of the public service sector should commence during university preparation, requiring a paradigm shift in both methodology and preparation (Benenson et al., 2022; O'Leary, 2002). This, in turn, necessitates active partnerships between universities, intensifying research and the presentation of research results in the field of higher education pedagogy. In response to global challenges and labour market demands, the higher education institution that is the focus of the present case study launched its Creative Learning Programme. The study presents the first three years of the Programme's implementation, utilising Kotter's eight-step change management model as a framework (Kotter, 1996), which is widely recognised and used in higher education (Wentworth & Behson, 2020). The presentation of the process may interest other higher education institutions for two reasons. Firstly, it highlights the applicability of the top-down strategy according to Kotter's model, emphasising that any omission at each step can jeopardise the success of the change process. Secondly, it offers valuable insights into how a teaching community responds to this type of change, emphasising the active contribution required for feasibility. Reviewing the eight steps of the model and aligning the entire change process within them, the university processes presented can be considered successful. The Programme has achieved several milestones and successes, with potential for further planning and development. From an organisational perspective, the establishment of an Office under the Deputy Rector for Education has been

a triumph. The Office is part of the Methodological Centres network, facilitating the sharing of good practices and development results among various departments responsible for methodological development in Hungarian higher education institutions. The Centres meet two or three times a year to share good practices and development results (publications, methodological manuals, methodologies). From a human resources standpoint, it is noteworthy that experts at all levels of the university contribute to the Programme through teaching and advisory roles. The top-down process enjoys support from various community members within their respective departments.

Kotter's research (2012) suggests that 70% of organisational changes fail, while only 10% are successful. The main failure is often attributed to insufficiently communicating the need for change to employees. Based on the eight-step model, the changes and actions taken so far can be deemed successful, but challenges remain in achieving a full paradigm shift. Step 8, indicating the consolidation of change in organisational culture, is considered the most significant challenge, as its assessment requires a longer-term perspective. If opponents and resistors to change can be won over, and if a compelling case is made for the importance of grassroots networking and departmental commitment, the Programme can achieve success. The stages of the change management process described in the present case study have yielded various results, the long-term impact of which cannot yet be measured. Achieving the objectives outlined in the university's strategic documents is a prolonged process requiring the commitment of the entire staff.

Conclusion

At the university under study, a pre-pandemic plan aimed at a paradigm shift in pedagogy and methodology. Examining the various stages of this shift through the lens of the Kotter model reveals that the driving force behind the change is the Chief Learning Officer (CLO) and Creative Learning Programme (CLP), along with the teachers and researchers associated with it. These dedicated individuals work persistently to support and create innovative spaces, aligning their efforts to achieve a shared vision (Kezar et al., 2018).

While a top-down education strategy endorsed by institutional leaders envisions a pedagogical reform impacting hundreds of teachers system-wide, the reality of change often originates from a more focused circle. Typically, it begins with educators who embrace change, are passionate about education, and take proactive steps to learn and implement new methods while re-evaluating familiar practices. These initiatives foster meetings and collaborations

across various departments and faculties, allowing for a more comprehensive exchange of ideas.

One of the significant milestones in this process occurred in June 2023, when the competency-based formulation of the Training and Output Requirements for the university's courses was completed. This framework served as the basis for the revision of all of the training programmes scheduled for autumn 2023. The criteria for programme revision were developed in accordance with the guidelines of the European Higher Education Area. These guidelines emphasise the development of learning outcomes, the learning process and student learning, promoting collaborative learning, individual learning pathways and a shift in the role of the lecturer. The curriculum redesign places a strong emphasis on competence development, proposing a streamlined but higher-credit course structure per semester. This approach aims to eliminate overlaps and redundancies, ideally aligning the levels of training and complying with the principles outlined in the European Standards and Guidelines (ESG) of 2015. Additionally, the reform underscores a robust alignment with the labour market, emphasising the importance of practical education. In essence, the ongoing paradigm shift, fuelled by collaborative efforts and a commitment to innovation, positions the university to not only meet the evolving needs of education, but also to proactively shape the future of learning and competency development in higher education.

While we have striven for maximum objectivity in presenting the process, it is important to recognise that no single perspective can fully encapsulate reality (Csabai, 2018). One of the authors of the present paper serves as the head of the Creative Learning Office, playing a pivotal role in implementing the startup plans. The other author actively contributes to shaping and participating in the educational reform process, as well as undertaking further research on the transformation journey. In articulating this paper, we have attributed meanings to the various stages of the process and events that unfolded. Recognising the inherent subjectivity, further research, utilising mixed methods (quantitative and qualitative), has the potential to refine the results presented in this paper.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Márta Katalin Korpics, PhD, is an associate professor and trainer in the field of social communication on the faculty of Public Governance and International Studies at Ludovica University of Public Service, Budapest, Hungary. For two years she led the Creative Learning Office, which coordinated a paradigm shift in pedagogy at the university. Her research interests are in two major areas of communication research: one is community communication, including communication in religious communities. The other is the interactive aspects of higher education, research into the development of competences and the use of creative tools. She applies his research findings to everyday teaching, using a variety of creative and interactive teaching methods.

Andrea Bajnok, PhD, is an associate professor, solution focused mediator, and trainer in the field of social communication on the faculty of Public Governance and International Studies at Ludovica University of Public Service, Budapest, Hungary. She is responsible of Postgraduate Training Course for Trainer of Public Service. She designs and delivers leadership skills training programs in the public administration and law enforcement offline and online. Her research interests include emergency remote teaching, higher education pedagogy, diversity, organizational and leadership communication and management, professional development of teachers and trainers.

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The Relationship Between Chronotype and Academic Achievement Among Slovenian University Students: The Mediating Role of Trait Self-Control and Sleep Quality

Katarina Maučec*[1] and Vita Štukovnik[2]

Several studies have identified a relationship between an individual's chronotype and academic performance. Specifically, individuals with a morning preference often outperform those with an evening preference. Our research explored whether trait self-control and sleep quality mediate this association. We conducted an online survey completed by Slovenian university students. Chronotype, trait self-control, and sleep quality were measured using the Morningness-Eveningness Questionnaire, the Brief Self-Control Scale, and the Pittsburgh Sleep Quality Index. Additionally, the participants' academic achievement was assessed using an objective measure (the average grade for the winter 2022/2023 exam period) and a subjective measure (students' own assessment of their performance compared to their peers). The results show that all researched concepts are positively correlated. Additionally, mediation analyses revealed that trait self-control significantly mediated the relationship between chronotype and both measures of academic achievement. Conversely, while sleep quality did not mediate the relationship between chronotype and objective academic achievement, it did partially mediate the relationship between chronotype and the subjective achievement measure. These insights provide a novel comprehension of the intrinsic modalities that might link chronotype and academic performance.

Keywords: chronotype, academic achievement, trait self-control, sleep quality, university students

1 *Corresponding Author. Health Promotion Center, Laško Community Health Centre, Slovenia; kmaucec12@gmail.com.
2 Faculty of Arts, University of Maribor, Slovenia.

Povezanost kronotipa in študijske uspešnosti pri slovenskih študentih: mediatorska vloga samokontrole kot osebnostne lastnosti in kakovosti spanja

Katarina Maučec in Vita Štukovnik

Številne študije so pokazale, da je posameznikov kronotip povezan z njegovo študijsko uspešnostjo. Študentje, ki imajo izražene značilnosti jutranjega tipa, so študijsko uspešnejši kot tisti, ki imajo izražene značilnosti večernega tipa. Namen naše raziskave je bil ugotoviti, ali sta samokontrola kot osebnostna lastnost in kakovost spanja mediatorja v tej povezavi. Izvedli smo spletno anketo, ki jo je izpolnilo 544 slovenskih študentov (56 % žensk, povprečna starost 21,6 leta, *SD* = 2,32). Kronotip, samokontrola kot osebnostna lastnost in kakovost spanja so bili merjeni z uporabo vprašalnika jutranjosti in večernosti (MEQ), kratke lestvice samokontrole (BSCS) in pittsburgškega indeksa kakovosti spanja (PSQI). Študijsko uspešnost udeležencev smo ocenili z objektivno (tj. povprečno oceno zimskega izpitnega obdobja 2022/23) in s subjektivno mero (subjektivno oceno študijske uspešnosti v primerjavi s sovrstniki). Rezultati so pokazali, da so vsi raziskovani koncepti pozitivno povezani. Mediacijske analize so pokazale, da samokontrola kot osebnostna značilnost statistično pomembno mediira odnos med kronotipom in obema merama študijske uspešnosti. Po drugi strani kakovost spanja ni mediirala odnosa med kronotipom in objektivno mero študijske uspešnosti, je pa delno mediirala odnos med kronotipom in subjektivno mero študijske uspešnosti. Naši rezultati nakazujejo na novo razumevanje mehanizmov, ki povezujejo kronotip in študijsko uspešnost.

Ključne besede: kronotip, študijska uspešnost, samokontrola kot osebnostna značilnost, kakovost spanja, študentje

Introduction

Circadian rhythms, intrinsic biological oscillators, govern a multitude of physiological processes and behavioural activities in living organisms, synchronising them with the environmental 24-hour day-night cycle (Vitaterna et al., 2001). A pertinent manifestation of these rhythms in humans is the chronotype, representing an individual's preferential timing for periods of activity and rest, which subsequently influences diverse aspects of daily functioning and overall well-being (Adan et al., 2012).

Individuals typically ascribe to one of two predominant chronotypes: morning and evening types. Morning types demonstrate a predilection for earlier periods of peak activity, preferring earlier times for sleep and waking. Conversely, evening types exhibit a propensity for later activity peaks, typically adhering to later sleep and waking schedules (Wittmann et al., 2006).

Research indicates that an individual's chronotype goes beyond merely dictating their daily preferences; it can significantly affect various aspects of mental and physical health, creating a wide range of individual differences. Importantly, people who are naturally inclined towards 'eveningness' have been found to experience various challenges. Such challenges include mental health issues such as depression and anxiety (Partonen, 2015), as well as behaviours like acting on impulse and taking risks (Fabbian et al., 2016). Furthermore, a substantive body of evidence fortifies the relationship between chronotype and academic achievement. The data suggests a notable trend of superior academic performance among morning types in comparison to their evening-type counterparts within university student populations (Enright & Refinetti, 2017; Mirghani, 2017; Montaruli et al., 2019; Tonetti et al., 2015). Nevertheless, a limited number of studies do not support this trend in certain age groups. Specifically, Figueiredo (2023) has demonstrated that morning and evening types in primary school do not differ in academic performance in the subjects of math and Portuguese. A meta-analysis conducted by Preckel et al. (2011), however, elucidates that the relationship between chronotype and academic achievement operates independently of age, while another by Tonetti et al. (2015) reveals the stability of this association across both genders.

Researchers have worked to understand how chronotype and academic achievement are connected, exploring factors like learning motivation and daily sleepiness as possible links between them. For instance, a susceptibility to reduced learning motivation and heightened daily sleepiness among evening types has been documented, which, in turn, poses detriments to their academic attainments (Roeser et al., 2013). High school students who report attenuated

alertness during diurnal hours also manifest heightened levels of depressive moods, which is concomitantly associated with suboptimal academic performance (Short et al., 2013).

Additionally, the influence of personality traits has been implicated in mediating the relationship between chronotype and academic performance. Specifically, 'morningness' is associated with proactive behaviours, notably elevated conscientiousness (Rahafar et al., 2016), which has been identified as a predictor of academic achievement (Arbabi et al., 2015). Another personality trait that may elucidate these discrepancies is self-control, although research scrutinising its role in the relationship between chronotype and academic achievement is scant. Trait self-control, characterised as the capacity to modulate one's responses to align with standards such as ideals, values, morals, and societal expectations and to facilitate the pursuit of longitudinal goals (Baumeister et al., 2007), has been illustrated to be more prominent among morning types (Digdon & Howell, 2008; Milfont & Schwarzenthal, 2014; Przepiórka et al., 2019; Wang, 2014). Furthermore, trait self-control is a critical determinant of academic prosperity. Wang and Hu (2015) offer a potential explanation for the association between chronotype and trait self-control through the lens of social jet lag, wherein societal demands conflict with individual sleep preferences, creating discrepancies and inducing social jet lag. Consequently, evening types, requiring amplified effort to manage daily societal demands, may deplete their self-control resources, culminating in diminished self-control (Baumeister et al., 1994). An alternative explanatory framework posits that the positive correlation between morningness and trait self-control may be attributable to reduced bedtime procrastination among morning types (Wang & Hu, 2015), as higher trait self-control is inversely related to bedtime procrastination among tertiary education students (Bernecker & Job, 2020; Zhang et al., 2023). Several personality traits, including impulsiveness, sensation-seeking, and persistence, are concomitantly associated with both chronotype and trait self-control. Evening types exhibit heightened impulsiveness (Kang et al., 2015; Selvi et al., 2011; Selvi et al., 2015) and sensation-seeking (Prat & Adan, 2013), while higher trait self-control is inversely associated with impulsiveness (Mao et al., 2018) and sensation-seeking (Pokhrel et al., 2010). Moreover, a positive correlation exists between morningness and persistence (Caci et al., 2004; Lee et al., 2017) and, similarly, between persistence and trait self-control (Gordeeva et al., 2017).

Empirical evidence substantiates that university students manifesting higher trait self-control also exhibit enhanced academic success (King & Gaerlan, 2013; Stadler et al., 2016). Trait self-control predicts academic achievement, transcending cognitive ability, and forecasts both objective (e.g., grade point

average) and subjective academic achievement metrics, whereas cognitive ability solely predicts objective academic achievement indicators (Stadler et al., 2016). Given the association of trait self-control with both chronotype and academic achievement, it is plausible that trait self-control could mediate the relationship between these two constructs.

People with different chronotypes also show distinct differences in their quality of sleep. The concept of sleep quality, despite lacking a universally accepted definition (Ohayon et al., 2017), is discernible through various parameters such as subjective sleep quality, sleep latency, duration, efficiency, disturbances, use of sleep medication, and daytime dysfunction (Buysse et al., 1989). A body of research underscores a predilection towards suboptimal sleep quality among individuals exhibiting eveningness as opposed to morningness (Bavarsad et al., 2015; Carciofo et al., 2014; Kabrita et al., 2014; Vollmer et al., 2017). Individuals exhibiting a preference for morningness frequently demonstrate an augmented daily lifestyle regularity, a characteristic that has been positively correlated with enhanced sleep quality (Monk et al., 2004; Monk et al., 2003). A study by Taillard et al. (2002) illustrates that evening types, in contrast, typically exhibit a variability exceeding two hours in both bedtime and waking times compared to their morning-type counterparts. Moreover, evening types report heightened difficulties in sleep initiation (Sun et al., 2019) alongside an increased prevalence of insomnia symptoms and nightmares (Merikanto et al., 2012), all of which are factors inherently associated with reduced sleep quality (Bollu & Kaur, 2019; Paul et al., 2015; Yi et al., 2006). Furthermore, evening types harbour more dysfunctional beliefs regarding sleep (Adan et al., 2006; Ong et al., 2007), and the modification of such beliefs via cognitive-behavioural therapy has been demonstrated to enhance subjective sleep quality (Edinger et al., 2001).

Additionally, a positive correlation exists between sleep quality and academic achievement, as substantiated by multiple studies (El Hangouche et al., 2018; Gomes et al., 2011; Mirghani et al., 2015; Wong et al., 2013).

Suboptimal sleep quality also tends to result in elevated daytime sleepiness (Zailinawati et al., 2009), which has been inversely associated with academic achievement (Bahammam et al., 2012).

Numerous studies have linked trait self-control and sleep quality to both chronotype and academic achievement, albeit without exploring their potential mediating roles in this relationship. This study seeks to elucidate the underlying mechanisms correlating chronotype with academic achievement, questioning the attribution to biological predisposition and considering alternative mediators such as personality traits and sleep factors. We examine whether lower academic performance in university students preferring eveningness could

be attributed not directly to chronotype but mediated by trait self-control and sleep quality. Thus, this research aims to explore the mediating roles of trait self-control and sleep quality in the association between chronotype and academic success in a sample of Slovenian university students. Maučec and colleagues (2023) initially presented the study's preliminary results at the eSleep Europe Virtual Congress 2023. This article now unveils the expanded findings.

The hypotheses addressed in this study are:

1. The association between chronotype and academic achievement is mediated by self-control in a sample of Slovenian university students.
2. The association between chronotype and academic achievement is mediated by sleep quality in a sample of Slovenian university students.

Method

Participants

The sample was comprised of 544 Slovenian university students (56.1% female; M = 21.61 years, SD = 2.32), spanning various universities and faculties, with the majority being undergraduate students (67.2%). We included university students who achieved grades during the winter semester 2022/23.

Instruments

The Morningness-Eveningness Questionnaire (Horne & Ostberg, 1976): A 19-item measure capturing aspects of morningness across sleep habits, sleepiness, and optimal functioning times. The questionnaire utilises 1 to 5-point scales within its multiple-choice questions, with cumulative scores ranging from 16 to 86, categorising respondents into extreme evening type (16–30), moderately evening type (31–41), intermediate type (42–58), moderately morning type (59–69), and extreme morning type (70–86). The Slovenian version demonstrates a Cronbach alpha of 0.86 and a test-retest reliability of 0.96 (Treven Pišljar et al., 2019).

The Brief Self-Control Scale (Tangney et al., 2004): A 13-item instrument assessing trait self-control, with items rated on a 5-point Likert scale and higher scores indicating greater self-control. The Slovenian adaptation shows a Cronbach alpha of 0.77 (Zorjan, 2014).

The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989): A measure evaluating sleep quality across seven domains: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction, using 19 questions. Focusing on sleep quality in the past month, scores are calculated with a specific algorithm and combined to

produce seven composite scores and a global sleep quality score. While lower scores denote better sleep quality, a score above 5 distinguishes poor sleepers (Buysse et al., 1989). The Slovenian version of the PSQI used in our study has a Cronbach's alpha of 0.68 (Košir, 2021).

The Objective Academic Achievement: Assessed through students' average grades during the winter semester of 2022/23.

The Subjective Academic Achievement: This was evaluated using a 5-point Likert scale question regarding students' self-perception of academic performance relative to peers in the winter semester of 2022/23.

Research Design

Conducted from February 20th to March 5th, 2023, this prospective cross-sectional study utilised an online survey distributed via social media platforms, university newsletters, and email. Informed consent was obtained from each participant prior to survey initiation. All participants anonymously reported their demographic data, responded to standardised questionnaires, and could withdraw at any point without consequence. Participation was voluntary. Adherence to the Declaration of Helsinki was maintained throughout the study.

Initial analyses encompassed descriptive statistics and frequency analyses for demographic data. The representation of chronotypes and the percentage of participants scoring above 5 on the PSQI were calculated. Skewness and kurtosis coefficients verified the normal distribution of data, adhering to criteria set by Hair et al. (2010).

With subsequent Pearson correlation coefficient analyses, we explored relationships between variables, followed by a mediation analysis, employing the PROCESS macro ver. 3.5 (Hayes, 2013). Full or partial mediation models were subjected to Sobel test verification for statistical significance. Analyses were conducted using IBM SPSS ver. 21 (IBM Corp, 2019).

Results

Table 1 presents the descriptive statistics for chronotype, trait self-control, sleep quality, subjective academic achievement, and objective academic achievement (average grade). In terms of chronotype distribution, 3.7% of participants identified as extreme evening types, 19.7% as moderately evening types, 59.7% as intermediate types, 14.2% as moderately morning types, and 2.8% as extreme morning types. Based on the PSQI criterion (a score > 5) denoting poor sleep quality (as per Buysse et al., 1989), 65.9% of the university students in our sample qualified as poor sleepers.

Table 1

Descriptive statistics of the study variables

	M	*SD*	*Min*	*Max*	Skewness	Kurtosis	Cronbach alpha
Chronotype	48.64	10.04	24	81	0.19	-0.07	0.86
Trait self-control	41.46	8.47	17	61	0.05	-0.53	0.83
Sleep quality	6.00	2.90	1	17	0.97	1.03	0.67
Subjective academic achievement	3.42	1.04	1	5	-0.24	-0.35	-
Average grade	8.37	0.93	6	10	-0.36	-0.28	-

Note. M = average; *SD* = standard deviation; *min* = minimum; *max* = maximum Chronotype = Morningness-Eveningness Questionnaire total score; Trait self-control = Brief Self-Control Scale; Sleep quality = Pittsburgh Sleep Quality Index; Average grade = objective academic achievement.

The Relationships Between Chronotype, Trait Self-Control, Sleep Quality, and Objective and Subjective Academic Achievement

Table 2 presents statistically significant correlations among all variables.

According to Dancey and Reidy (2007), all correlation coefficients were of low magnitude, with the exception of those between objective and subjective measures of academic achievement. Specifically, morningness showed a positive correlation with trait self-control and sleep quality. Additionally, morningness exhibited positive correlations with both subjective academic achievement and average grade.

Furthermore, both measures of academic achievement demonstrated positive correlations with trait self-control and with sleep quality.

Table 2

Pearson correlation coefficients of studied variables

	Chronotype	Trait self-control	Sleep quality	Subjective academic achievement	Average grade
Chronotype	-				
Trait self-control	0.37**	-			
Sleep quality	-0.16**	-0.30**	-		
Subjective academic achievement	0.18**	0.36**	-0.14**	-	
Average grade	0.14**	0.28**	-0.10*	0.57**	-

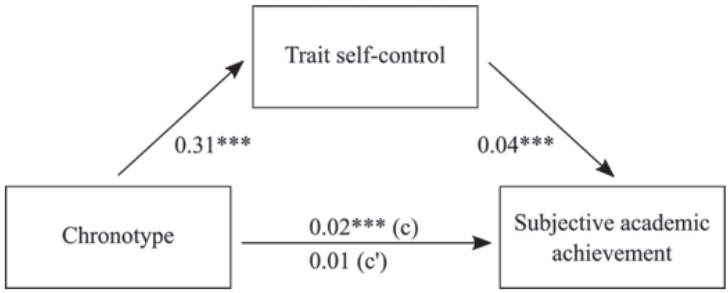
Note. * $p < .05$; ** $p < .01$; Chronotype = Morningness-Eveningness Questionnaire; Trait self-control = Brief Self-Control Scale; Sleep quality = Pittsburgh Sleep Quality Index; Average grade = objective academic achievement.

Mediational Role of Trait Self-Control and Sleep Quality in the Relationship Between Chronotype and Academic Achievement

We aimed to explore the relationship between chronotype and academic achievement among university students. In the analysis examining the mediational role of trait self-control, a significant total effect was observed between chronotype and subjective academic achievement. Both Path A (representing the effect of chronotype on trait self-control) and Path B (representing the effect of trait self-control on subjective academic achievement) were statistically significant. Notably, when incorporating trait self-control into the relationship between chronotype and subjective academic achievement, the direct effect became non-significant. Further, the Sobel test yielded a *t*-value of 6.33 with $p < 0.001$, indicating that trait self-control serves as a complete mediator in the relationship between chronotype and subjective academic achievement, as depicted in Figure 1.

Figure 1

Mediational role of trait self-control in the relationship between chronotype and subjective academic achievement (Maučec et al., 2023)

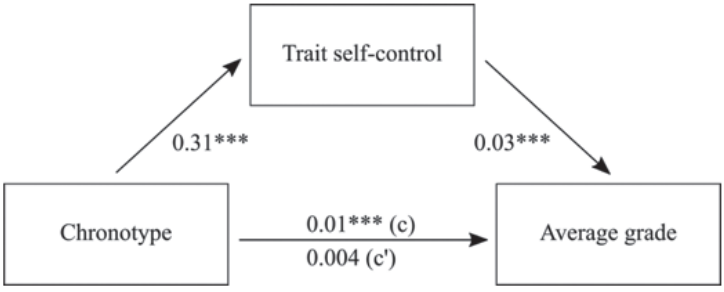


In the examination of the mediational role of trait self-control concerning the relationship between chronotype and average grade (objective academic achievement), a noteworthy total effect was observed between chronotype and average grade.

Additionally, Path B, representing the impact of trait self-control on average grade, was found to be significant. However, upon introducing trait self-control into the relationship between chronotype and average grade, the direct effect proved non-significant. The Sobel test further corroborated the indirect effect with a value of t =5.01 and $p < 0.001$. Consequently, it can be inferred that the relationship between chronotype and average grade is entirely mediated through trait self-control, as illustrated in Figure 2.

Figure 2

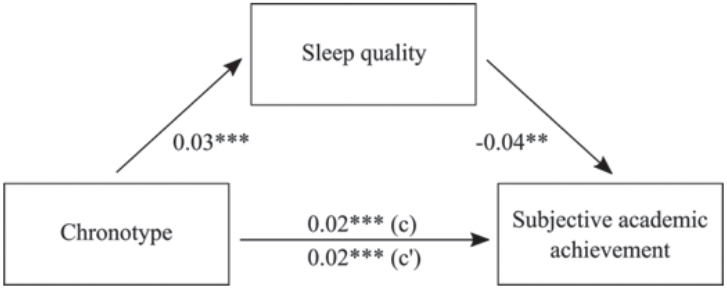
Mediational role of trait self-control in the relationship between chronotype and average grade (Maučec et al., 2023)



In examining the mediating role of sleep quality between chronotype and subjective academic achievement, our results indicate significant associations for both Path A (i.e., the effect of chronotype on sleep quality) and Path B (i.e., the effect of sleep quality on subjective academic achievement). Notably, the introduction of sleep quality into the relationship between chronotype and subjective academic achievement rendered the direct effect significant. The Sobel test further substantiates the indirect effect with a value of $t = 2.37$ and $p = 0.02$. Consequently, the data suggests that sleep quality serves as a partial mediator in the relationship between chronotype and subjective academic achievement (refer to Figure 3).

Figure 3

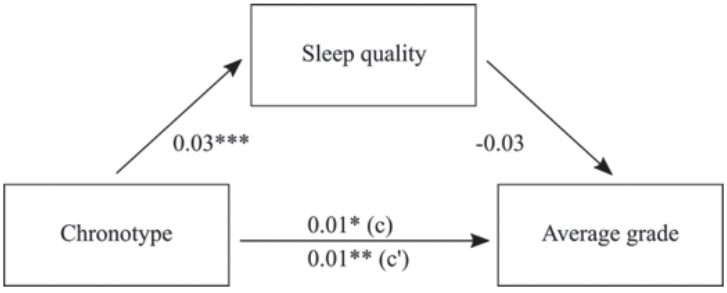
Mediational role of sleep quality in the relationship between chronotype and subjective academic achievement (Maučec et al., 2023)



In our investigation into the potential mediating effect of sleep quality on the relationship between chronotype and average grade, we found that

Path B (i.e., the effect of sleep quality on average grade) lacked significance. Subsequently, introducing sleep quality into the relationship between chronotype and average grade resulted in an insignificant direct effect. Based on these findings, we infer that the relationship between chronotype and average grade operates independently of sleep quality (refer to Figure 4).

Figure 4
Mediational role of sleep quality in the relationship between chronotype and average grade (Maučec et al., 2023)



Discussion

In this study, we aimed to elucidate the underlying mechanisms potentially linking chronotype with academic achievement. Specifically, our focus was on the mediating roles of trait self-control and sleep quality. While numerous studies have established a connection between these two constructs and the interplay of chronotype and academic achievement (Bavarsad et al., 2015; Digdon & Howell, 2008; El Hangouche et al., 2018; Stadler et al., 2016), none have explored the potential mediating roles of trait self-control and sleep quality in this relationship. Our investigation aimed to augment the current understanding of the intricate mechanisms underpinning the aforementioned association. Our study demonstrates a positive association between morningness and academic achievement, measured using both objective and subjective measures. Consistent with prior research, we found that morning types outperform their evening-type counterparts academically (Enright & Refinetti, 2017; Mirghani, 2017; Montaruli et al., 2019; Preckel et al., 2011). Morning types exhibit less daily sleepiness and greater academic motivation, which correlates with improved outcomes (Roeser et al., 2013). Conversely, evening types often show lower conscientiousness levels, a trait crucial for academic success (Arbabi et al., 2015; Rahafar et al., 2016).

Furthermore, our results indicate a significant positive association between chronotype, trait self-control, and academic achievement, with the latter assessed using objective and subjective measures. This observation is consistent with previous literature, which has also highlighted that individuals with morning tendencies generally demonstrate enhanced trait self-control (Digdon & Howell, 2008; Milfont & Schwarzenthal, 2014; Przepiórka et al., 2019) and that university students who exhibit higher levels of trait self-control tend to achieve superior academic outcomes (King & Gaerlan, 2013; Stadler et al., 2016). Moreover, in our study, trait self-control fully mediates the relationship between chronotype and academic achievement. To the best of our knowledge, this latter finding might provide a new perspective, possibly illuminating a previously unidentified mechanism that connects chronotype with academic achievement. It suggests that individuals with a morning preference are adept at modulating their responses, favouring strategies that support the achievement of long-term objectives. This can potentially facilitate more effective learning and better academic performance. Conversely, evening chronotypes demonstrate reduced self-control, which could contribute to their lower academic outcomes. Current literature affirms that individuals with an evening chronotype manifest heightened impulsivity (Kang et al., 2015; Selvi et al., 2011; Selvi et al., 2015), increased sensation-seeking behaviours (Prat & Adan, 2013), and lack of persistence (Caci et al., 2004; Lee et al., 2017). These behavioural patterns suggest a predisposition towards lower self-control traits (Gordeeva et al., 2017; Mao et al., 2018; Pokhrel et al., 2010) and collectively suggest a potential hindrance to academic success for evening chronotypes.

Additionally, recent studies have highlighted an increasing trend of problematic phone usage prevalent among university students with evening chronotypes (Randjelovic et al., 2021). This factor could further compromise the academic performance of the evening-oriented individuals (Hawi & Samaha, 2016; Tian et al., 2021). Notably, this behaviour is also correlated with trait self-control (Servidio, 2019).

Moreover, societal norms often do not align with the sleep patterns preferred by evening chronotypes, resulting in mismatches that lead to phenomena like social jet lag (Wang & Hu, 2015). This misalignment implies that evening-oriented individuals may need to expend additional effort to navigate daily societal obligations, potentially depleting their reservoir of self-control and thereby undermining their ability to modulate their responses (Baumeister et al., 1994). It is noteworthy that students possessing robust self-control also tend to procrastinate less (Steel, 2007), manage their study schedules efficiently, complete assignments punctually (Zhao et al., 2021), and consequently, often attain superior academic grades (Stadler et al., 2016).

In summary, the current findings contribute to a novel understanding of possible underlying mechanisms explaining why morning types attain superior grades compared to evening types. Our study reveals that this phenomenon might not be primarily attributable to biological predisposition but is instead associated with personality traits.

In this research, we were also interested in investigating the potential role of sleep quality in the relationship between chronotype and academic performance. Our findings provide empirical evidence suggesting a positive correlation between sleep quality among university students and their academic achievement. Furthermore, it was observed that individuals with enhanced sleep quality predominantly exhibit morning characteristics. This aligns with previous research demonstrating that evening types often exhibit inferior sleep quality (Bavarsad et al., 2015; Carciofo et al., 2014; Kabrita et al., 2014; Vollmer et al., 2017). In addition, compromised sleep quality has been identified as a risk factor for decreased academic performance (El Hangouche et al., 2018; Gomes et al., 2011; Mirghani et al., 2015; Wong et al., 2013).

Previous research has shown that evening types frequently demonstrate augmented daily lifestyle regularity (Monk et al., 2004; Monk et al., 2003), heightened difficulties in sleep initiation (Sun et al., 2019), greater variability in both bedtime and waking times (Taillard et al., 2002) and increased prevalence of insomnia symptoms and nightmares (Merikanto et al., 2012). These are all factors associated with reduced sleep quality (Bollu & Kaur, 2019; Paul et al., 2015; Yi et al., 2006) and sleep quality is positively related to academic achievement. Therefore, we hypothesised that sleep quality mediates the relationship between chronotype and academic achievement as measured with objective and subjective measures. However, our results do not fully support our hypothesis. Our research underscores the significance of chronotype in its relationship with objective academic performance, regardless of the quality of sleep. This suggests that contrary to trait self-control, sleep quality does not mediate the relationship between chronotype and objective academic achievement. Correspondingly, Okano et al. (2019) found that although chronotype significantly impacted academic achievement, sleep quality did not play a significant role. Although sleep quality can influence academic performance, its significance diminishes when other factors are considered. Önder et al. (2014) explored various academic predictors, noting that sleep quality was not a primary factor, whereas traits like conscientiousness, academic motivation, and social jetlag were more predictive. The researchers also found that university students who are morning types tend to be more conscientious, exhibit higher academic motivation, and accrue less sleep debt compared to their evening counterparts. Such attributes make them more

likely to excel academically. Furthermore, morning types tend to be more future-oriented, displaying greater strategic behaviour and a willingness to delay gratification, as highlighted by Stolarski et al. (2013). Supporting this, Peters et al. (2005) identified the foresight of future consequences as a more significant predictor of academic success than sleep quality alone.

Nevertheless, our research indicates that sleep quality does play a partial mediating role in the association between chronotype and perceived academic success. This indicates that while sleep quality influences the observed relationship, it does not provide a complete explanation of the dynamics between these factors. This finding highlights the complex interdependencies among chronotype, sleep quality, and academic performance measures. Further research is needed to elucidate the reasons why sleep quality is a partial mediator in the relationship between chronotype and subjective academic achievement but does not mediate the connection with objective academic metrics.

Conclusions

Our findings underscore the significant roles of trait self-control and sleep quality in mediating the relationship between chronotype and academic achievement. When accounting for trait self-control, chronotype ceases to be a direct predictor of academic achievement. Nevertheless, chronotype remains an important predictor when considered alongside sleep quality. Our study introduces a fresh perspective on the determinants of academic achievement, suggesting that it might be less influenced by chronotype and more by personality aspects, notably trait self-control. These findings suggest that future research should continue to explore personality traits and behaviours that might influence this dynamic. This complements previous research, which identified personality traits, like conscientiousness, as pivotal in elucidating the link between chronotype and academic performance. Regarding sleep quality, our study highlights the intricate interplay between sleep quality, chronotype, and academic performance, revealing a complex association that warrants further investigation to fully understand its implications for educational strategies and student well-being.

As with every study, this one also has a few limitations. Given the cross-sectional nature of our study, causality cannot be established, and longitudinal studies are required to probe the causal pathways involved. Longitudinal studies could examine how changes in self-control and sleep quality over time correspond to academic outcomes across different chronotypes. Our reliance on self-reported data, particularly concerning sleep quality and academic grades,

is a limitation that future research should address through objective measures. Furthermore, exploring the impact of exam timings could offer a more nuanced understanding of these relationships. This is especially relevant, given studies suggest that the time of day can influence the interplay between chronotype and academic performance (Zerbini & Merrow, 2017). For enhanced precision, future studies might consider incorporating a more extensive collection of grades.

Future studies should consider the complex interdependencies between chronotype, academic behaviours, and personality traits also to better inform interventions aimed at improving academic performance. Our findings reveal the importance of considering individual differences in chronotype and self-regulation when designing educational strategies and support services for students. Additionally, developing programs that build self-regulatory skills could possibly help improve academic outcomes. Promoting good sleep hygiene practices might also be important, considering the link between sleep quality and perceived academic success.

Disclosure Statement

The authors have no conflict of interest to declare.

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Biographical note

Katarina Maučec, MSc in Psychology, graduated in 2023 at the Faculty of Arts, University of Maribor, Slovenia. Currently, she is working at the Health Promotion Center at the Laško Community Health Centre. She is a member of the European Sleep Research Society. Her research focuses on the psychological dimensions of sleep health, including the impact of sleep on cognitive, behavioral, and psychosocial functioning.

Vita Štukovnik, PhD, is a clinical psychology specialist and an assistant professor of psychology at the Department of Psychology, Faculty of Arts, University of Maribor, Slovenia. Her research interests encompass clinical neuropsychology, clinical psychology, and sleep. In her role as a clinical psychologist, she primarily concentrates on the treatment of chronic insomnia and has introduced cognitive-behavioral therapy for insomnia in Slovenia.

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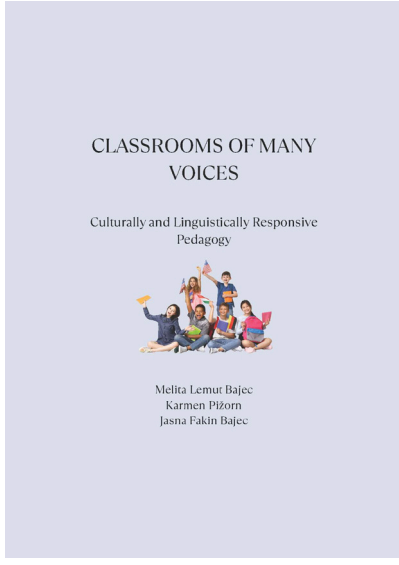
Melita Lemut Bajec, Karmen Pižorn, Jasna Fakin Bajec, *Classrooms of Many Voices: Culturally and Linguistically Responsive Pedagogy*, University of Ljubljana, Faculty of Education Press, 2026; 111 pp.: ISBN: 978-961-253-362-5

Reviewed by Maja Melinc Mlekuž[1]



When we talk about education today, it seems almost self-evident that classrooms are no longer homogeneous: linguistically, culturally or in terms of experience. However, this assumption often remains at the level of general principles, while in concrete pedagogical practice, it becomes clear that diversity is not always systematically considered. It is precisely in this gap between the declarative acceptance of diversity and its actual didactic implementation that the textbook *Classrooms of Many Voices: Culturally and Linguistically Responsive Pedagogy* by Melita Lemut Bajec, Karmen Pižorn and Jasna Fakin Bajec finds its place. The main purpose of the textbook is not merely to present the key concepts of multilingual and intercultural education but to connect them with concrete pedagogical situations and with broader discussions of inclusive and socially responsive education. Several chapters return to the question of how teachers can respond to linguistic and cultural diversity in everyday classroom situations. Rather than offering fixed didactic solutions, the authors encourage readers to think through the complexities of multilingual and intercultural classrooms step by step. In doing so, the textbook invites reflection on what it means to teach in environments where multilingualism and interculturalism are part of everyday classroom reality rather than exceptions. The authors develop the concept of language-sensitive pedagogy through discussions of translanguaging, plurilingual education and inclusive teaching practices.

1 School of Humanities, University of Nova Gorica, Slovenia; maja.melinc.mlekuz@ung.si.

Each chapter includes intended competences, learning outcomes, reflective activities and references to portfolio-based tasks that require students to engage actively with the material. In the first content section, the textbook focuses on understanding linguistic repertoires. Here, the authors clearly distinguish between concepts such as multilingualism, plurilingualism, language switching and translanguaging. It is important that these concepts are presented not merely as terminological categories but as different ways of understanding language practice. The tasks accompanying this section guide students to analyse their own language use. The second chapter, "Multilingual and Intercultural Education", continues this discussion by emphasising that intercultural education cannot be reduced to simply acquiring information about other cultures. More important is the development of critical awareness of one's own perceptions, stereotypes and cultural perspectives. Many of the reflective tasks focus on dialogue, empathy and students' attitudes towards cultural and linguistic differences. Particularly useful are those activities that invite students to analyse their own experiences and assumptions about cultural diversity. In this section, the textbook moves beyond the purely theoretical level and actively involves students in processes of professional self-reflection. A similar balance between theory and practical applicability is evident in the chapter on Content and Language Integrated Learning (CLIL). The CLIL methodology is presented in a balanced manner, without idealisation. In contemporary pedagogical debates, CLIL is sometimes depicted as a universal solution for multilingual education, but the authors avoid such oversimplifications; they clearly emphasise that the successful implementation of CLIL depends not only on teaching the subject in a foreign language but primarily on careful planning, cognitive support and the meaningful integration of language and content objectives. Particularly useful is the explanation of the 4C model – Content, Communication, Cognition, Culture – which is presented clearly enough for students to relate it to specific learning situations.

The textbook also devotes considerable attention to broader pedagogical issues that extend beyond a narrow understanding of multilingualism. The chapters "Taxonomy of Educational Objectives" and "Critical Thinking and Metacognition" significantly broaden the conceptual framework of the work. The taxonomy of educational objectives is presented not merely as a formal classification but as a way of thinking about learning processes. Many activities require interpretation, argumentation and evaluation rather than simple reproduction of information, and reflective and interpretative forms of learning are frequently promoted. The authors also understand critical thinking in a much broader sense: not as a set of isolated cognitive skills but as the ability to understand different perspectives and social relations, and to reflect critically

on issues of inclusion, power and cultural diversity. This approach is particularly relevant at a time when educational debates increasingly include issues of identity, social justice and democratic participation.

One of the textbook's most interesting aspects is how it links language with cultural memory and identity. The chapter "Wisdom in Words" treats proverbs not merely as linguistic curiosities but as carriers of cultural meaning, collective memory and social values. In the Slovenian context, where language instruction often remains heavily focused on normative aspects, such a broader cultural perspective is particularly valuable. The textbook convincingly shows that language teaching can also provide a space for reflection on identity, values and intercultural understanding. This perspective is further developed in the chapters "Language as a Cultural Symbol of Individual Identity" and "Language as Intangible Cultural Heritage." Here, language is presented not only as a means of communication but also as part of cultural continuity, belonging and collective memory. Importantly, the textbook does not romanticise cultural heritage. Alongside issues of language and identity preservation, the authors also address themes of inequality, inclusion and social power. Each chapter includes clearly defined learning objectives, reflective activities, portfolio assignments, and sections focused on working with academic articles. Most activities are meaningfully linked to the chapter's content and effectively promote active student engagement. Particularly effective are tasks requiring students to connect theoretical concepts with their own language experiences or specific pedagogical situations.

The multimodal elements also deserve special mention: the sections "Truths across Time", "Press Play for Perspective" and "Culture & Language Curiosities" significantly broaden the context for understanding individual topics and support diverse ways of engaging with learning. Especially noteworthy is the multilingual adaptation of the story *The Three Little Pigs*, which combines multiple languages within a single narrative and encourages students to reflect on similarities between languages, mutual understanding and multilingual communication. Such activities are didactically effective because they link abstract concepts to concrete and recognisable situations.

The textbook is also notable for the way it incorporates contemporary European frameworks and research. References to the CEFR, FREPA, plurilingual education and language-sensitive pedagogy are thoughtfully integrated throughout. At the same time, the authors maintain an accessible and pedagogically oriented style, which is particularly important for students encountering these concepts for the first time. Given the broad scope of the topics, some areas are presented in a simplified and introductory manner; however, this should not be considered a major shortcoming, as the primary purpose is to introduce the

subject matter. Readers seeking a more in-depth theoretical analysis of individual concepts will need to consult the selected references suggested at the end of each chapter. The textbook does not aim to be a specialised monograph in applied linguistics or intercultural pedagogy but rather to establish a broader conceptual framework for further professional reflection and study. The main objective is to help future teachers and other educational professionals understand the evolving realities of today's classrooms and society, explore effective ways of responding to them, and approach these changes with both critical insight and empathy.

The textbook's overall structure is logical and accessible, and its pedagogical aims are clearly articulated throughout. At the same time, certain aspects invite further reflection and discussion. A more pronounced connection between individual chapters could contribute to greater internal coherence. Moreover, a greater number of complex case studies from diverse school settings could further enrich the practical dimension of the work. Another limitation is the pronounced focus on European educational frameworks and perspectives. Although this is understandable given the context in which the textbook was created, including more non-European perspectives would further expand its intercultural dimension. On the other hand, the close connection to European frameworks significantly contributes to the work's terminological consistency and academic relevance.

Classrooms of Many Voices remains highly relevant to current educational discussions and represents a pedagogically valuable and carefully designed contribution to teacher education. Its greatest strength lies not only in presenting contemporary concepts of multilingualism and interculturalism but above all in repeatedly connecting these concepts with recognisable classroom situations. This is particularly important in the Slovenian context, where educational discussions have only recently begun to engage more systematically with the realities of increasing linguistic and cultural diversity brought about by contemporary migration and broader social change. Much of the existing literature in language didactics still approaches language primarily from the perspective of norms, grammar or methods for teaching individual languages. In contrast, *Classrooms of Many Voices* understands language in a much broader sense: as a space of identity, culture, social relations, inclusion and educational participation. The textbook is most convincing when it remains close to actual classroom dilemmas and encourages future teachers to think about how linguistic and cultural diversity shapes everyday teaching practice. At a time when issues of inclusion, identity, equity and access to knowledge are becoming an increasingly important part of European education systems, such reflection is not merely desirable but essential. This is precisely why *Classrooms of Many Voices*

represents an important contribution to contemporary teacher education and pedagogical thought. It manages to remain theoretically informed while still staying close to concrete pedagogical situations and classroom dilemmas. Such a balance is difficult to achieve, which is why this publication is particularly valuable for both higher education and broader pedagogical practice.

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