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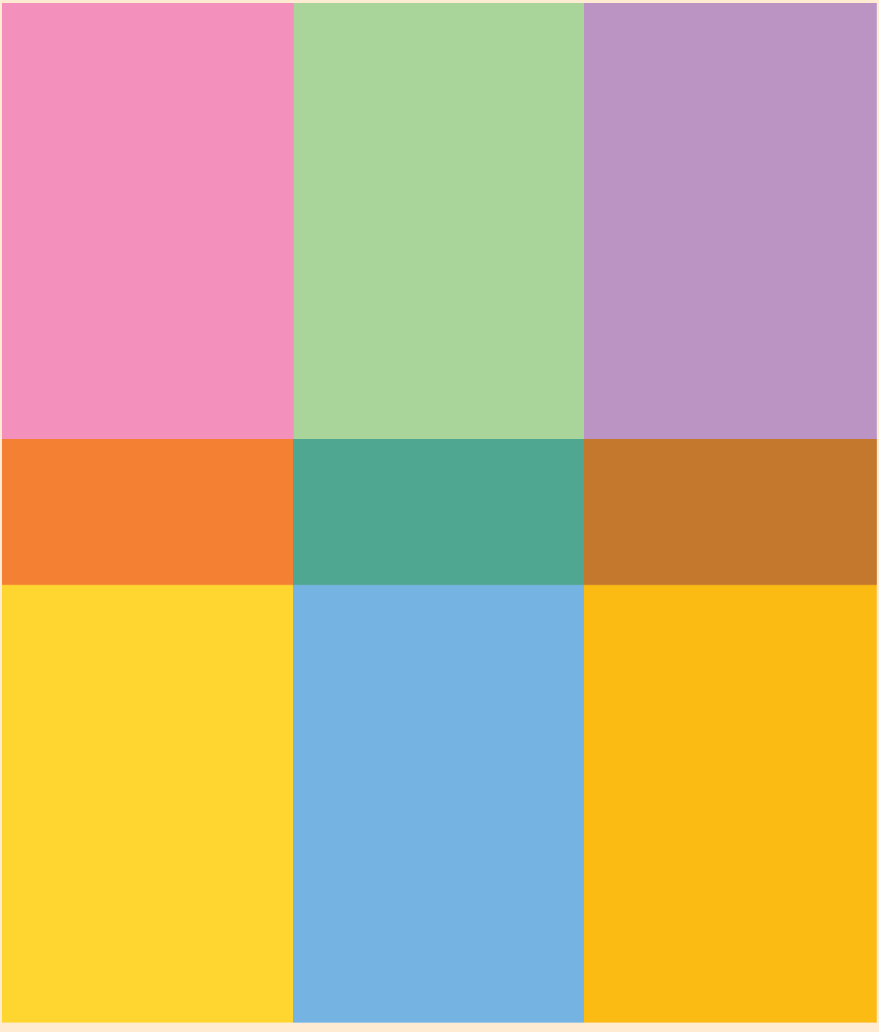

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The CEPS Journal is an open-access, peer-reviewed journal devoted to publishing research papers in different fields of education, including scientific.

Aims & Scope

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

About the Publisher

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

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

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

Cilji in namen

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

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

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

The publication of the CEPS Journal in 2023 and 2024 is co-financed by the Slovenian Research Agency within the framework of the Public Tender for the Co-Financing of the Publication of Domestic Scientific Periodicals.

Izdajanje revije v letih 2023 in 2024 sofinancira Javna agencija za raziskovalno dejavnost Republike Slovenije v okviru Javnega razpisa za sofinanciranje izdajanja domačih znanstvenih periodičnih publikacij.

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Review

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Editorial

The second issue of CEPSj in 2024 comprises different Varia papers focusing on mathematics education, LGBT issues in education, how practice education should be conducted in social work education, geology education, specific issues in different educational systems, effects of chronotypes on students' classroom behaviour, the problems that families with special needs children face, how speech and language therapists assess their knowledge and skills, and about autism spectrum disorder and education.

The first paper, *Assessing Student Teachers' Ability in Posing Mathematical Reasoning Problems* by Masriyah, Ahmad Wachidul Kohar, Endah Budi Rahaju, Dini Kinati Fardah and Umi Hanifah deals with assessing pre-service teachers' ability to pose mathematical reasoning problems. Such competences are essential due to the increasing challenges teachers face in 21st-century mathematics teaching. This paper presents a study investigating the quality of mathematical reasoning problems pre-service teachers pose. Thirty-four pre-service teachers from a public university in Indonesia participated in the study. The results indicate that more than 70% of them were successful in posing reasoning problems, but more detailed results are presented in the paper.

The second paper, by Marija Bartulović and Barbara Kušević, *When Does "Too Early" Become "Too Late"? Reflections of Croatian Secondary School Educators on the Persistence of LGBT Taboos in the Education System* presents one of the topics generated by a thematic analysis of data collected through a focus group process. The paper draws from the research project LGBT (In)Visibility in School: The Educators' Perspective, which focused on the taboo position of sexual and gender diversity within the education system. Focus group secondary school teachers identified key factors about the understanding of the student as an innocent being whose sexual education should begin at a time that educators themselves are unable to determine. They also identify parents as barriers to the inclusion of topics of sexual and gender diversity in the curriculum and the absence of a systematic, LGBT-inclusive approach to teaching about sexuality.

The next paper, *Reflexive Practice Learning as the Potential to Become a Competent Future Practitioner* by Tadeja Kodele and Nina Mešl, describes an example of social work education in which reflexive practice learning was used to help students work competently in professional practice. Within an action research project, new forms of mentoring support for students working with families facing multiple challenges were developed as part of their practice learning. This paper presents the results of a qualitative analysis of the students'

reflections on mentoring meetings. The analysis shows practice learning should be framed as a reflexive dialogue between mentors and students. Students need opportunities to share experiences and expand their knowledge with other students in small mentoring groups. The continuous and concrete support that the mentoring group provided to the students in practice enabled them to deal with the sense of uncertainty that often arises in collaborative processes of help.

The fourth paper, by Tereza Jedličková, Andrea Svobodová and Václav Kachlík, *Frequent Limits and Advantages of Conditions for Geology Education: Example of Czech and Slovak State Curricula* presents geology as a subject of low interest for many students and teachers. This study examines the organisational conditions for geology education using the model of the Czech Republic and Slovakia, drawing from the national curricula. The study discusses the possible reasons for the unpopularity of the field worldwide and proposes general recommendations that would contribute to increasing interest in geoscience. The main drawbacks of geology education seem to be the large volume of required knowledge, its thematic structure, and a lack of real-life contexts.

The next paper in this 2024 Varia issue, *Success in Education by Defying Great Odds: A Positive Deviance Analysis of Educational Policies*, by Eva Ponte, discusses the issues of education being currently in crisis in many parts of the world. This constitutes a significant drawback in terms of humanity's prosperity and well-being since education is the key to an educated workforce and humane, collaborative, and caring societies. Even within this dim landscape, certain educational systems defy the odds and perform significantly higher than their otherwise comparable systems. This paper proposes using an unusual lens for educational policy comparative studies of positive deviance to aid us in progressing towards a more stable educational state of affairs. Using a positive deviance methodology, which focuses on learning what is working well in systems that defy and overcome substantial challenges, this study investigates the patterns, attitudes, and actions of three selected cases: Massachusetts as a positive deviant in the US, Estonia as a positive deviant in Europe, and Castile-Leon as a positive deviant in Spain. By analysing educational policies, laws, and other related documents, the purpose is to find commonalities that explain why these systems outperform others. The results of the comparative analysis pinpoint areas and strategies informative to those leading struggling educational systems, such as a strong commitment to equity and justice, placing teachers at the centre of reforms, using assessment as a tool for process monitoring and summative inquiry, and making preschool education accessible to all.

The sixth paper, by Sandra Figueiredo, *Chronotypes, Disruptive Behaviour, and Schedules in Classrooms: 'Morningness' and Psychomotor Agitation*,

presents an empirical cross-sectional study that explored the effect of chronotypes on classroom behaviour. One hundred and forty 1st to 4th graders were examined regarding their chronotype and disruptive behaviours occurring in the classroom. Three groups of chronotypes (i.e., morning, intermediate and evening) were identified. Multivariate analysis of variance and analysis of regression parameters showed that morning children are more agitated and impulsive compared to evening peers. Concerning academic achievement, students did not differ in the subjects Portuguese and Mathematics for both semesters when considering chronotype and controlling for covariates such as age and gender. Parental qualifications appeared as an influential covariate for the chronotype effect in disruptive behaviour. This evidence addresses the contributions of school policies and family supervision regarding young children. This study highlights concerns and novelties for education and psychology.

The seventh paper, *The Families of Special Needs Children from the Perspective of Vulnerability*, by Darja Plavčak, suggests that families of children with special needs should be approached with sensitivity, flexibility, and balanced interventions. It is important to understand families in the context of their lives, including the emotional stages of caring for a child with special needs and other difficult circumstances they may face. Interventions should be tailored to the specific needs of families and developed collaboratively with them.

The eighth paper, by Jerneja Novšak Brce, Ingrid Žolgar and Damjana Kogovšek, *Self-Evaluation of Speech and Language Therapists on their Competence in Cooperation with Parents in Slovenia and North Macedonia* aims to examine how speech and language therapists from Slovenia and North Macedonia assess their knowledge and skills necessary for cooperation with parents. For the study, a questionnaire was developed to measure the competence of collaboration among speech and language therapists and parents in a sample of 110 speech and language therapists, including 62 speech and language therapists from Slovenia and 48 from North Macedonia. The results show differences between Slovenian and North Macedonian speech and language therapists in self-assessed attitudes towards parental involvement but no differences in the domain of knowledge and skills. The interaction of country and years of work experience is significant for the knowledge domain. Attitudes about cooperation with parents are not affected by years of work experience, area of work, or additional professional training; only the country where the therapists work has an impact. The competence of collaboration between speech and language therapists and parents varies between the two countries, but there is space for improvement in each domain.

The last paper in this issue, *Dimensions of Object Relations in People with Autism Spectrum Disorder as a Basis for Strengthening Social Relatedness Skills* by Simona Rogič Ožek, presents the results of a study focusing on the dimensions of object relations in people with autism spectrum disorder. An object relation denotes a relationship with a significant other, within which several identification processes take place through a meaningful emotional exchange. This is described by the developmental process of separation and individuation, which primarily occurs in children from birth to their third year of life. Although deficits in social relationships represent the most typical features of autism, there is still a great deal of uncertainty in this field. Based on the theoretical background, the author hypothesised that differences in the characteristics of object relations in people with autism spectrum disorder compared to the characteristics of object relations in people without autism spectrum disorder are reflected in a greater expression of disturbances in object relations, especially in the more pronounced dimensions of greater social isolation and symbiotic merging. Thirty-eight adults with autism spectrum disorder with normal intellectual abilities and 100 adults without autism spectrum disorder participated in the study. The results show statistically significant differences between the two groups of respondents, as the dimensions of symbiotic merging, social isolation and separation anxiety are more pronounced in adults with autism spectrum disorder. These findings serve as a basis for designing professional support for people with autism spectrum disorder to promote autonomy and strengthen the skills needed for social relatedness and social inclusion.

This issue concludes with a book review by Matej Zapušek, who presented a book *Handbook of Game-Based Learning* by Jan L. Plass, Richard E. Mayer and Bruce D. Homer (Eds.) published by MIT Press in 2020.

Iztok Devetak

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Assessing Student Teachers' Ability in Posing Mathematical Reasoning Problems

Masriyah*[1], Ahmad Wachidul Kohar[2], Endah Budi Rahaju[2], Dini Kinati Fardah[2] and Umi Hanifah[2, 3]

Assessing student teachers' ability to pose mathematical reasoning problems within their experiences in teacher education is essential due to their increasing challenges in preparing for 21st-century learning. This study investigates the quality of mathematical reasoning problems posed by student teachers. Thirty-four student teachers at a public university in Surabaya, Indonesia, who attended an assessment lecture posed mathematical problems, where four aspects (suitability of indicators which refers to cognitive behaviour expected from the problems posed, the plausibility of the solution of the problems poses, the correctness of the solution, and language readability) were used to assess the problems posed. The results indicate that more than 70% of the student-teacher participants were successful in posing reasoning problems (either objective or subjective questions) indicated by those which are in accordance with the established criteria. However, most of the posed problems are categorised as 'analyse' problems instead of 'evaluate' or 'create' problems.

Keywords: mathematical reasoning problem, student teachers, problem-posing

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Ocenjevanje zmožnosti študentov, bodočih učiteljev, pri zastavljanju problemov matematičnega sklepanja

Masriyah, Ahmad Wachidul Kohar, Endah Budi Rahaju,
Dini Kinati Fardah in Umi Hanifah

Ocenjevanje zmožnosti študentov, bodočih učiteljev, pri zastavljanju problemov matematičnega sklepanja v okviru njihovih izkušenj v izobraževanju učiteljev je bistvenega pomena zaradi vse večjih izzivov pri njihovi pripravi na učenje v 21. stoletju. Ta študija raziskuje kakovost problemov matematičnega sklepanja, ki jih zastavljajo študentje, bodoči učitelji. 34 študentov učiteljev na javni univerzi v Surabayi v Indoneziji, ki so se udeležili ocenjevalnega predavanja, je zastavljalo matematične probleme, pri čemer so bili za oceno zastavljenih problemov uporabljeni štirje vidiki (ustreznost kazalnikov, ki se nanaša na kognitivno vedenje, pričakovano od zastavljenih problemov, verjetnost rešitve zastavljenih problemov, pravilnost rešitve in berljivost jezika). Izsledki kažejo, da je bilo več kot 70 % udeleženih študentov, bodočih učiteljev, uspešnih pri zastavljanju problemov sklepanja (objektivnih ali subjektivnih vprašanj), kot kažejo zastavljeni problemi, ki so skladni z določenimi merili. Večina zastavljenih problemov pa je razvrščena v kategorijo problemov »analiziranja« namesto problemov »vrednotenja« ali »ustvarjanja«.

Ključne besede: problem matematičnega sklepanja, študentje, bodoči učitelji, zastavljanje problemov

Introduction

Posing mathematical tasks is essential for all mathematics teachers in presenting their instructions (Smith et al., 1996). In this regard, Chapman (2013) included such skills in a setting in which teachers should be able to identify, select, and create mathematically and pedagogically rich tasks. The latter ability is deemed problem-posing ability, in which teachers are encouraged to be knowledgeable of and skilled at problem-posing in order to provide students with learning opportunities that involve it (Cai, 2013). Despite problem-posing being the leading mathematical activity that stimulates mathematical thinking, not every situation of individuals' mathematical work, including teachers, is regarded to encourage their problem-posing activities (Hodnik & Kolar, 2022). In this case, teachers are required to pose mathematical tasks by understanding the level of cognitive demands of the task and the relationship to task objectives in terms of the level of learning and understanding of the mathematics they can promote (Chapman, 2013). Alternatively, the cognitive demands can be interpreted as all cognitive process levels, from the lowest to the highest, as suggested in Bloom's Taxonomy (Krathwohl, 2002). Thus, teachers need to be competent in posing problems for more than the level of remembering, understanding, and application. The higher levels, known as HOTS, comprise logical thinking, critical thinking, and reasoning, which are basic daily life skills (Marshall & Horton, 2011).

More specifically, Bjuland (2007) defined reasoning as five interrelated mathematical thinking processes: sense-making, conjecturing, convincing, reflecting, and generalising. Furthermore, Boesen et al. (2010) classified mathematical reasoning as five interconnected processes of mathematical thinking: sense-making, conjecturing, convincing, reflecting, and generalising. Four process standards for reasoning and proof in instructional programmes, from prekindergarten through grade 12, proposed by the National Council of Teachers of Mathematics of the United States (2000), recognise reasoning and proof as fundamental aspects of mathematics, making and investigating mathematical conjectures, developing and evaluating mathematical arguments and proofs, and selecting and using various types of reasoning and proof methods. Those processes are also in accordance with the cognitive processes of Bloom's revised taxonomy, which are categorised as analysing (C4), evaluating (C5), and creating (C6) or classified as higher-order thinking (HOT) skills (Anderson & Krathwohl, 2001). The corresponding verbs indicating those three cognitive processes are differentiating, organising, attributing, checking, critiquing, generating, planning, and producing. Those verbs are then used as the basis of

writing indicators of items in many item developments of reasoning problems. In particular, in the current Indonesian curriculum document, those three levels are categorised as reasoning levels. These are the basis of writing items for any national school examination (Setiawati et al., 2019). Furthermore, reasoning problems are promoted in the inclusion of the current national assessment system called Minimum Competency Assessment (MoE, 2021), in which international standard assessment systems such as PISA and TIMMS become the main reference for writing the items.

From the definition and characteristics explained, reasoning skills, to which the three levels: reasoning, evaluating, and creating are referred, can be investigated by using certain tasks or problems that may include sense-making, reflecting, generalising, investigating conjectures, posing arguments, judging, or proving statements. For example, West (2018) used open-ended tasks to stimulate mathematical reasoning, while Kosyvas (2016) used open-ended problems to investigate the level of arithmetic reasoning. Hence, open-ended problems can be included as tools to investigate and stimulate reasoning. In these particular studies, such tasks were used to promote reasoning. Another type of task (i.e., a non-routine task) is also used to examine students' mathematical reasoning since it can identify the types of reasoning performed by students (Jäder et al., 2017). In this study, the reasoning problems that are expected to be proposed by prospective teachers are considered problems for assessing students' mathematical reasoning. These problems assess students' abilities in analysing, evaluating, and creating where doing so is needed to distinguish, organise, relate, examine, criticise, generate, plan, and produce. In addition, understanding, reflecting, generalising, investigating conjectures, making arguments, judging, or proving the promoted statements are also crucial in reasoning problems.

Prior to implementing mathematics instruction and encouraging students' HOT skills, teachers may consider posing reasoning tasks, such as open-ended or non-routine tasks, as either assessment needs or learning material needs. However, in practice, the application of learning that involves students in HOT skills is challenging to do, as well as the assessment (Zohar, 2004). It is easier for teachers to assess students' calculation skills than to assess HOT skills and reasoning skills (Nortvedt & Buchholtz, 2018; Palm et al., 2011; Schoenfeld, 2007). Therefore, mathematics education students as prospective teachers should be able to pose high-level math problems or reasoning categories problems as a part of the assessment.

The primary key is the ability to pose reasoning problems in mathematics learning. Teachers' ability to pose reasoning problems is required to explore

and evaluate the extent to which students understand the material being taught. In addition, teachers' ability to pose reasoning problems can help students reduce their dependence on textbooks and help them be more involved in learning activities (Lavy & Shriki, 2007). Teachers need to be involved in problem-posing activities to pose mathematical reasoning problems. According to Silver (1994), problem-posing activities refer to generating new problems from a mathematical context and reformulating a given problem. In general, posing a problem is posing a problem in free situations. However, problem-posing activities can also pose problems whose answers are appropriate to give answers containing specific information from graphs, diagrams, and so on, or given mathematical calculations (Lee, 2021). In this study, we focus on the generation of new problems by which the problems were posed based on several conditions: alignment with curriculum outcome (goal, competency, not cognitive demand), reasoning problem, and closed/open (Grundmeier, 2015).

Several aspects used to assess an individual's ability to pose mathematical problems were reported. For example, Silver and Cai (1996) suggested examining the language structure of and the presence or absence of a solution to the problems raised to assess a person's ability to pose problems, while Siswono (1999) and Masriyah et al. (2018) assessed students' posed problem from a given context by focusing on whether the problems can or cannot be solved, the interrelationship of problems with the information, answers to the problems raised, language structure used, and the problems' levels of difficulty. Furthermore, Stickles (2011) analysed problems posed by preservice and in-service teachers and considered a problem to be well defined if it meets criteria by which it will (a) encourage one to simplify and posit the problem oneself and abstract the mathematical representations and (b) where there are no applicable solution methods or procedures to complete the task.

In recent years, the quality of problems posed by teachers, either in-service or preservice, including student teachers, were examined through problem-posing activities to determine whether it reflects teacher subject matter and pedagogical content knowledge (Lee et al., 2018; Yao et al., 2021), curricular knowledge (Cai & Hwang, 2021), and large-assessment scale-based task like in PISA problem (Rosyidi et al., 2020; Tasman, 2020). In fact, this last aspect shows that there is a tendency for research topics to be interested in assessing the quality of mathematics problems by varying the level of cognitive demand according to the demands of the 21st century. However, there are limited studies discussing the problem quality created by teachers regarding the cognitive demand level of reasoning aspect. For example, Rahaju and Fardah (2018) found that several teachers failed to pose higher-order thinking (reasoning) problems

due to confusion over applying analysing problems. This study suggested that, among six levels of Bloom's revised taxonomy, the mathematical problem percentages referred to as the 'analysing' problem the teacher participants created was only 47.06%, while only five participants created the 'applying level' problem. With different contexts, Rahaju et al.(2020) found that 54.71% of the total participants in their study were successful in posing reasoning skills problems ranging from the levels of analysing, evaluating, and creating. However, those studies only took teachers as subjects, and there was no finding discussing the student teachers as subjects. Therefore, this study concerns the performance of student teachers' abilities in posing mathematical reasoning problems.

Based on the previous evidence, the researchers were interested in identifying student teachers' abilities to develop reasoning problems. The reasoning problem criteria could assess, through several aspects, the suitability of the problems (Anderson & Krathwohl, 2001; Bjuland, 2007; National Council of Teachers of Mathematics, 2000); difficulty level of the prepared problem (Siswono, 1999); the problem openness regarding the solution number and solution alternatives (Kosyvas, 2016; West, 2018); the plausibility of the created problem (Silver & Cai, 1996); the correctness of problem (Siswono, 1999); the language suitability of the problem with the students' levels of knowledge (Kohar et al., 2019); and language or sentence structure used in the problems arranged (Siswono, 1999; Zulkardi & Kohar, 2018).

In this study, we focused on the following criteria: problem plausibility, language structure, and suitability of task to student ability. Furthermore, we also added another criterion, namely the problem suitability with indicators of the problem, since one of the requirements for any future teacher is being able to translate the cognitive demand provided in the curriculum document into problem design.

Research Questions

What is the quality of mathematics problems posed by prospective teachers regarding the aspects of reasoning problem level, problem plausibility, language structure, and suitability to students' knowledge level?

Method

Research design

This descriptive qualitative research aims to make systematic, factual, and accurate fact descriptions, characteristics, and relationships between the investigated phenomena by drawing from a naturalistic perspective and examining

a phenomenon in its natural state (Kim et al., 2017). Thus, the research design studies the research subjects in their environments to explore their behaviours without outside influence or interventions. The phenomenon in this study is the student teachers' ability to pose mathematics reasoning problems.

The participants were 34 student teachers (14 males and 20 females) from the Department of Mathematics Education, Faculty of Mathematics and Natural Sciences, Surabaya State University, Surabaya, East Java, Indonesia, who were attending an assessment course. The participants were taken from a class consisting of students of both sexes and a variety of mathematical abilities, meaning that relatively balanced numbers of the sexes and levels of mathematical ability were applied in selecting class samples. At the time of taking this data, students had taken several basic pure mathematics courses, such as logic and sets, differential and integral calculus, and elementary number theory, as well as pedagogical courses, such as learning theory, innovative learning, and educational basics.

Data collection

Data were collected from the participant's responses to a problem-posing task, which asked them to pose mathematics problems based on a given situation. Some lectures related to Assessment in Mathematics Education were carried out for 15 meetings. The time for data collection was after students joined the lectures about open-ended questions, types of mathematics questions regarding their structure, which is objective or subjective, and problems that fall into the category of reasoning questions (7^{th} of 15 meetings). The problem-posing activity using the problem-posing task (Table 1) was carried out by the researcher as an assessment lecturer at the 7^{th} meeting assigning students individually to pose reasoning questions at home and collected at the next meeting (8^{th} meeting). Because they worked at home, they were allowed to use literature.

Before working on the problem-posing task, the participants followed a short discussion with the authors to confirm what they needed to do regarding the task through a stimulus. The stimulus was around the class discussion regarding the concept of mathematical reasoning guided by the lecturer. The discussion is directed at the potential problems exemplified by participants to be developed to a higher level of problems. In this situation, the first author, who acted as the lecturer at such a discussion, guided the student participants to identify the characteristics of the reasoning problem as explained in the introduction section of the present paper (i.e., understanding, reflecting, generalising, investigating conjectures, making arguments, judging, or proving the promoted statements are also crucial in reasoning problems), exemplifying

examples and non-examples of reasoning problem, and asking students to pose mathematical questions from a given stimulus in a problem-posing activity. In addition, the participants also discussed how to derive indicators of the mathematical problem, which represent the cognitive demand of the problem, from the basic competencies for school mathematics published by the Ministry of Education (MoE), namely Permendikbud No 24 2016 (MoE, 2016).

Table 1

The problem-posing task

Task Instrument
You are asked to pose two mathematics problems with the following instruction.
1. Choose a pair of Knowledge or Skills Basic Competency from several Basic Competencies of the 2013 Curriculum for junior, senior, or vocational school level, then determine an indicator* of the problem you created. * The indicator of the problem indicates a description of behaviour that can be observed and measured to show that a student has engaged in some cognitive demands to achieve specific competence. Indicators of problem are a marker of achievement of Basic Competencies, which are indicated by measurable behavioural changes, including attitudes, knowledge, and skills. This measurement is known as a crucial part of the current Indonesian curriculum for school subjects (Anggraena et al., 2022).
2. Based on the indicators that you formulate, choose one indicator to pose two problems with reasoning categories (one objective question and one subjective question) ** accordingly. ** Objective questions are those requiring a specific answer, having only one potential correct answer, leaving no room for opinion, while subjective questions are those requiring answers in the form of explanations such as essay responses, short answers, definitions, and opinion or argumentation.

Data analysis

The posed problems were then analysed considering indicators for reasoning problems, namely analysing, evaluating, or creating. These are the three highest levels of Bloom's taxonomy (revision) for the cognitive process dimensions, so the three-level problems are often referred to as higher-order thinking (HOT). Anderson & Krathwohl's (2001) dimension of cognitive processes referring to those three levels was used to classify the problem posed by the participants, whether it is a reasoning problem or not. The following stages describe how the posed problems were analysed and reported.

1. Each of the student teachers' responses was examined by authors in a forum group discussion to determine whether it meets the criteria of reasoning problem, problem plausibility, understandable language structure, suitability of the cognitive demands (indicated by stated indicator), and suitability to students' level of knowledge. A problem is classified as a reasoning problem if it meets the criteria of analysing, evaluating, or creating a problem in the Revised Bloom's Taxonomy. Meanwhile,

language suitability is the degree of familiarity of the language used in the texts provided in the problem regarding the readers, which in this case are students at secondary school.

2. The number of problems meeting the criteria was changed into a percentage as compared to the number of students who completed the task.
3. The percentage of each criterion was reviewed and analysed according to the success criteria of competent students in posing reasoning problems. Thus, the authors set four criteria to analyse the problem posed by the students: (1) the problems are in accordance with the indicators of the problem set out by students, (2) the problems posed by students have a solution, (3) the solution of the reasoning problems posed by the students is correct, and (4) the structure of the sentences used in the problem is in accordance with the students' levels of knowledge. Regarding Criterion (1), an example of a problem that does not reflect the indicator set out by the participants is as follows.

   Indicator: evaluate the correctness of a statement related to a proportional reasoning problem.
   Question: If one litre of gasoline can be used to travel as far as 30 kilometres, then three litres of gasoline can be used to travel as far as… km.

   Although the problem indicates the use of proportional reasoning, it does not reflect the cognitive behaviour demanded as written in the indicator, which encourages a solver of the problem to evaluate the correctness of the proportional reasoning-related statement. Thus, it is coded as an unsuitable problem with indicators. Furthermore, regarding the level of cognitive process, this problem cannot be coded as a reasoning task since this problem only requires the solver to apply simple proportional reasoning directly without the need for further assumptions or further analysis of the information provided.
   The number of problems posed by students that met each criterion was compiled. Then, the number of problems meeting the criteria was changed into a percentage, as compared to the number of students who completed the task. The percentage of each criterion was reviewed and analysed according to the success criteria of competent students in posing reasoning problems.
4. Some examples of each criterion are described by providing the student teachers' responses.

Results

The analysis results of problems posed by students in essay and objective types are given in Tables 2, 3, and 4.

Table 2

Achievement percentage of the criteria for problems posed by students

No.	Aspect	Problem Type	Percentage (%)
1	Problems posed by students in accordance with the indicators	Subjective	88.23
		Objective	91.18
2	The problems posed meet the reasoning problem criteria	Subjective	82.35
		Objective	79.41
3	Problems can be solved	Subjective	85.29
		Objective	94.12
4	The solutions to the reasoning problems arranged are correct (plausible)	Subjective	79.41
		Objective	94.12
5	The problems made are in accordance with the level of knowledge of students.	Subjective	100
		Objective	100
6	The language or sentence of the problem posed is effectively understandable	Subjective	91.17
		Objective	91.17

Table 3

Difficulty level percentage of problems posed by student teachers

No.	Difficulty Index	Problem Type	Percentage (%)
1	Difficult	Subjective	26.47
		Objective	14.71
2	Medium	Subjective	58.82
		Objective	70.58
3	Easy	Subjective	14.71
		Objective	14.71

Table 4
Percentage of reasoning problems, including open problems or not

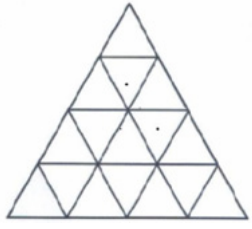
Open Problem	Problem Type	Percentage (%)
Yes	Subjective	70.58
	Objective	82.35
No	Subjective	29.42
	Objective	17.65

The following indicates some examples of the work of participants in posing the reasoning problems.

The problem that was not in accordance with the indicator

a. Indicator: Find a comparison of three similar triangles

Figure 1
The triangles used as an example of Problem 1 are not based on the indicator

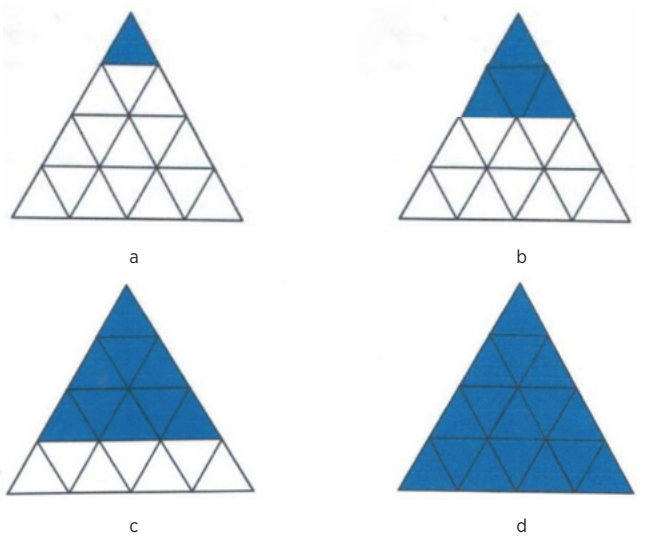


Problem 1: Determine the ratio of the number of triangles above that have different sizes (Figures 1 and 2)

Solution:

Figure 2

The ratio of the number of the triangle in different sizes, (a) 16 triangles with one unit length, (b) 7 triangles with two units of length, (c) 3 triangles with three units of length, and (d) 1 triangle with four units of length



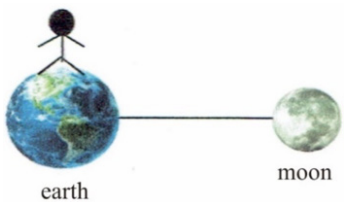
Therefore, the ratio of the number of triangles with 1 unit length: 2 units: 3 units: 4 units was 16: 7: 3: 1.

This problem was not in accordance with the indicator because it reads, 'Find a comparison of three similar triangles.' This means what will be achieved is to determine the ratio between the length of the side and the area or the circumference of several equilateral triangles, while the problem asked was to determine the ratio of the number of triangles with different-sized sides. However, it is included as an example of a reasoning problem. This is indicated by the demand for investigating conjectures related to the geometrical shapes (triangles) and the number of each triangle with different sizes.

b. Indicator: Solve problems related to tangents outside two circles (Figure 3).

Problem 2:

Figure 3
The astronaut problem used as Example 2 is not based on the indicator



An astronaut wants to go to the moon. However, he was confused about how much fuel was needed for the rocket. One litre of fuel can be used for a distance of 80 metres. If the radius of the earth is 6,300 km, the radius of the moon is 1,700 km, and the distance between the earth and the moon is 384,000 km, then the amount of fuel that the rocket needs to get to the moon is ….

A. $32{,}492 \times 10^{2}$ litres
B. $31{,}352 \times 10^{-1}$ litres
C. $31{,}352 \times 10^{-2}$ litres
D. $31{,}249 \times 10^{-3}$ litres

This problem was not in accordance with the indicator because the indicator was 'Solve problems related to tangents outside two circles', while, in this problem, the question was how much fuel the rocket needed to reach the moon. Finding the answer to this problem does not require calculating the length of the tangents outside the two circles. Regardless of whether it is in accordance with the indicator selected, this problem can be considered a reasoning problem since those solving it need to build their sense-making on the contextual information and reflect it into a relevant mathematical procedure (i.e., the distance between two spheres) and the judge the amount of fuel needed by the rocket.

The problem that is in accordance with the indicator

Problems 3 and 4 represent examples of reasoning problems posed by student teachers. While Problem 3 indicates the cognitive demand for investigating conjectures of number patterns in simple remainder problems, Problem

4 indicates the cognitive demand for sense-making in a piece of information related to geometrical shapes and spaces. Meanwhile, Problems 5 and 6, although not consistent with the indicators created, are considered reasoning problems.

a. Indicator: Determine the unit number of a power number

Problem 3: What is unit number 3^{1999}?

Solution:
$3^1 = 3$, the unit is 3
$3^2 = 9$, the unit is 9
$3^3 = 27$, the unit is 7
$3^4 = 81$, the unit is 1
$3^5 = 243$, the unit is 3
$3^6 = 729$, the unit is 9
.
.
.
The unit numbers form a sequence of repeating numbers as follows:
3, 9, 7, 1, 3, 9. . .
If it continues until 3^{1999}, the pattern will continue to repeat and
$1999 = 4\ (499) + 3$
So, the unit number of 3^{1999} is 7

b. Indicator: Determine the distance from a point to a line in space

Problem 4: Given: Cube of ABCD.EFGH
The distance of point A to the HB line is ……
A. $2\sqrt{6}$
B. $2\sqrt{2}$
C. 3
D. $6\sqrt{2}$

The following was an example of a problem that was incompatible with the indicator of a reasoning problem.

c. Indicator: Solve problems in daily life related to the two-variable linear equation system

Problem 5: The price of a pair of shoes is twice the price of sandals.

Ardi bought two pairs of shoes and three pairs of sandals at a price of IDR 420,000.00. If Dony buys three pairs of shoes and two pairs of sandals, Dony must pay as much as ……..

A. IDR 180.000,00
B. IDR 360.000,00
C. IDR 480.000,00
D. IDR 540.000,00

This problem cannot yet be categorised as a reasoning problem. Instead, it is included as an application problem since the cognitive demand of this problem is only to apply simple mathematical operations related to solving a system of linear equations with two variables directly in a word problem. However, the level of this problem can be upgraded into a reasoning problem by changing what is asked from only asking the price of some pairs of sandals and shoes to asking about the change that should be given to the buyers within the transaction. This adds to the chain of reasoning, at least with regard to the number of required mathematical operations. Following is what it means.

> The price of a pair of shoes is twice the price of sandals.
> Ardi bought two pairs of shoes and three pairs of sandals at a price of IDR 420,000.00. If Dony buys three pairs of shoes and two pairs of sandals, and he has IDR 500.000,00, how much is the change?

The problem also can be developed into a reasoning one and include an evaluation problem if it is revised as follows.

> The price of a pair of shoes is twice the price of sandals.
> Ardi bought two pairs of shoes and three pairs of sandals at a price of IDR 420,000.00. Dony also wants to buy shoes and sandals at the shop, and he brings as much as IDR 500,000.00. How many pairs of shoes and sandals can he buy as much as possible to get as little change as possible, and how much is the change?

The reasoning problems posed by students were generally included

in the analysis categories (71.43%). The evaluation problems posed were 25%, while the creating problems were only 1.46%.

Problem elaboration: Analysing, evaluating, and creation

The following problems were successively given as an example of problems made by students for the categories of analysis, evaluation, and creation.

The problem with the 'analyse' category

Problem 6 indicates an example of an analysis problem, and students should carry out an analysis by identifying the elements that are most important and relevant to the problem (attributing process), then proceed with building the appropriate relationship from the information that has been given (organising process). This is in accordance with the characteristics of the analysis problems that involve cognitive processes: attributing and organising.

Problem 6: Fauzan goes from city A to city B. If in 1 hour he rides 1.5 km more, then he only needs 0.8 times the usual time he uses. If in 1 hour he goes 0.5 km slower, then he only takes 2.5 hours longer than the time he used. What is the distance between city A and city B?

A. 120 km
B. 165 km
C. 170 km
D. 200 km

The problem with the "evaluate" category

Problem 7 indicates two examples of evaluation problems because students should check which steps are correct and logical (checking process). In addition, students need to assess these steps based on certain criteria and standards that are appropriate (critiquing process). This is in accordance with the criteria for evaluation problems that involve cognitive processes: checking and critiquing.

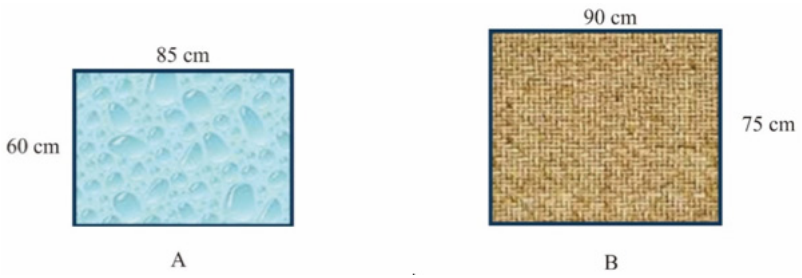
Problem 7:

a. Observe the following work. Which steps in the row are incorrect?

$$\begin{aligned}(-2)^3 &= (-2)^{½ \times 6} \\ &= (-2)^{6 \times ½} \\ &= ((-2)^6)^{½} \\ &= (64)^{½} \\ &= 8\end{aligned}$$

b. Hary will give his mother a birthday present and put it in a square-shaped base that has a volume of 64,000 cm³. This gift box will be wrapped in gift paper with one motif. There are two gift paper motifs that Hary has chosen with their size and price as follows. In order to use the minimum cost, which paper should Hary choose? (Figure 4)

Figure 4
Gift paper for Hary's mom's birthday present, (A) motives 1, and (B) motives 2



To answer these problems, students must calculate how much paper is needed for each motif, determine the overall price, and then determine that one requires lower costs.

c. A sphere-shaped iron is placed in a cube-shaped box with sides 10 cm long. If the volume of the water box is 900 cm³ and the radius of the sphere-shaped iron is 3 cm, will the water in the bathtub overflow? Give your reason.

To answer this problem, students must calculate the volume of each object (cube and sphere), then evaluate (i.e., consider) and examine the quantity of water and sphere volume associated with the volume of the cube.

The problem of the 'create' category

Problem 8 indicates two examples of evaluation problems because students need to think in a divergent manner, which is the essence of creative thinking (generating process). In addition, students need to plan to solve the problems given, which leads to producing new procedural knowledge (producing process). This is in accordance with the characteristics of creating problems that involve cognitive processes: generating and producing.

Problem 8: Explain the relationship between the formulas of surface area and the volume of the tube mathematically.

In this problem, students are asked to think of something new that can be used to solve problems, namely, deriving new formulas from existing formulas. The solution starts by writing the formula of the surface area and volume of the tube as follows.

$L = 2(\pi r^2 + \pi rt)$
$V = \pi r^2 t$
From $V = \pi r^2 t$, we have $\pi r^2 = \frac{V}{t}$, and $\pi rt = \frac{V}{r}$
From $V = \pi r^2 t$, we have $r = \sqrt{\frac{V}{\pi t}}$ …… (Formula 1)
Then from $L = 2(\pi r^2 + \pi rt)$, we have $L = 2(\frac{V}{t} + \frac{V}{r})$ … (Formula 2)

So, the relationship between the formulas of the surface area and the tube volume was $L = 2(\frac{V}{t} + \frac{V}{r})$, and we can determine the surface area of the tube with known volume, height, and base perimeter using Formulas 1 and 2.

The following are given examples of reasoning problems posed by students that cannot be solved due to insufficient information (***Problems 9 & 10***).

Problem 9: Every morning, Dina would run around her housing complex three times. However, every Sunday morning, he would run around the housing complex five times. If counting starts today, how many times will Dina run around the complex for the next 30 days?

The problem cannot be answered with certainty because it depends on the day. If today is Sunday, Monday, Tuesday, Wednesday, or Thursday, then in the next 30 days, there will be 4 Sundays and 26 non-Sunday days, so Dina goes around as much as $(4 \times 5 + 26 \times 3)$ times = 98 times. If today is Friday or Saturday, then in the next 30 days, there will be 5 Sundays and 25 non-Sunday days, so Dina goes around as much as $(5 \times 5 + 25 \times 3)$ times = 100 times.

Problem 10: In the case study about students' impressions of the three subjects, namely, Mathematics, English, and Sports, the following data were obtained.

There are 14 students who like English, 15 students who like math, and ten students who like sports. In addition, there are seven students who like

math and English, six students who like English and sports, two students who like all three, and only 21 students who do not like any of the three subjects. Based on this information, please find the number of students who

a. like math and sports.
b. like exactly two subjects?
c. like exactly one subject?
d. like at least two subjects?

This problem cannot be solved because the total number of students in the study was unknown. Thus, the number of students who like certain subjects is also determined by the total number of students surveyed.

The following is an example of a reasoning problem with a subjective type made by a student that can be resolved, but the solution given is not entirely correct (***Problem 11***). In this case, although the student teachers were not asked to solve their posed problems, some tried to give the solution to the problems to clarify the plausibility of the problems.

Problem 11: Determine the value of m that causes the function graph $y = (m - 3)\, x^2 + 4x - 2\, m$ entirely located above the x-axis!

Solution:
The function graph is above the x-axis if $D < 0$ and $a > 0$.
This means: $m - 3 > 0$ and $4^2 - 4(m - 3)\,(-2m) < 0$
Because $m - 3 > 0$ then $m > 3$ ……. **(1)**
$4^2 - 4(m - 3)(-2\, m) < 0$
$\leftrightarrow 16 + 8\, m^2 - 24m < 0$
$\leftrightarrow m^2 - 3m + 2 < 0$
$\leftrightarrow (m - 2)(m - 1) < 0$
$\leftrightarrow 1 < m < 2$ …….. **(2)**
Therefore, the solutions are: $1 < m < 2$ or $m > 3$

The final solution made by the student was wrong because the value of m must meet **(1)** and **(2),** i.e., $m > 3$ and $1 < m < 2$. Therefore, the correct solution was: 'There was no value of m, which was the solution to the problem'. This means her/his trials to provide the solution to the problem do not help his/her ability to pose a mathematics problem.

Discussion

Generally, Table 4 showed that all percentages of criteria achieved by student teachers were 70%. For the criterion of problem suitability for the level of knowledge, students reached the highest percentage: 100%. This means that students have a good understanding of how to pose problems that fit their level of students' understanding in secondary school.

In fact, both students and teachers also learn the curriculum subject in school mathematics, where the learning trajectory of any mathematical topic is studied across levels from primary to senior high school. Regarding the relatively good achievement regarding the participants' ability to pose problems meeting the intended problem indicator, the study results indicate that they have successfully learned and practised how to arrange indicators to achieve basic competencies for learning mathematics material for middle and high school students. The intended indicator is an achievement marker of basic competencies marked by measurable behaviour change (Harvey & Green, 1993). The indicator serves as a guide to developing learning material. Thus, the problems made by the teacher to measure the students' understanding of the achievement of the learning material must be in accordance with the indicators that have been formulated. Those statements showed that students already have experience in posing problems assigned by the lecturer.

Our findings indicated that while most of the mathematical problems that participants posed relatively met the reasoning problem criteria, most of them were in the lowest level of reasoning category, namely the level of analysing (71.43%). Meanwhile, the higher levels (i.e., 'evaluating' and 'creating' problems) are relatively low. This fact showed that the higher level of the reasoning problem, the more challenging effort for a problem designer to design a reasoning problem. This is in line with the findings of Zulkardi & Kohar (2018), stating that novice task designers such as student-teachers meet difficulties in a design problem that elicits students' mathematical competencies, as suggested in the reasoning problem. To explain this phenomenon, we argued that encouraging teachers in problem-posing practice is not a matter of simply asking them to pose their problems. As novice problem designers, according to Murtafiah et al. (2020), they might be influenced by the type and the way mathematical problems are presented in any mathematics textbook or without giving focus attention to whether the context of the problem is familiar or not with targeted students. In this case, there is a concern that the math problems they refer to from their selected textbooks do not show problem models in the category of reasoning.

In this regard, Crespo and Sinclair (2008) argued that mathematics students and teachers commonly had few opportunities and experiences to pose their problems. Conversely, similarly to higher education students, they tend to solve the problems posed by their lecturers or by textbooks. In addition, since lecturers in any university often deal with solving educational problems in mathematics, they are likely to have more experience in working with learning sources from school mathematics textbooks. Therefore, when teachers are given opportunities to pose their own problems, it makes sense to assume they will generate mathematical problems that are similar to what a school mathematics problem should look like, such as regarding either linguistics complexity or difficulty levels. This argument comes from the typical problems posed by the study participants, as mentioned by Problem 5, where the finding solution idea of a linear system with two variables with one solution through 'camouflage context' is commonly found in Indonesian mathematics textbooks. This indicated that student teachers, in their first trial, tended to pose mathematical problems that were mostly on the topic of arithmetic, required a one-step solution, and had only one correct solution (Leavy & Hourigan, 2019).

The findings of this study also highlight the fact that despite the problems posed by the students meeting the criteria of reasoning by more than 70%, it is still suggested to give more concern to the quality of the problem posed by the participants as there were still some students who failed in posing reasoning problems. This is aligned with a study that showed that teachers' created tasks promoting reasoning problems were infrequent (McMillan, 2001). In addition, the study of Akhter et al. (2015) stated that, although teachers were very enthusiastic about learning that involves students' reasoning, especially in problem-solving, implementing learning that promotes reasoning skills, which in this case is providing reasoning tasks as one of their learning resources, was not an easy task for prospective teachers.

Table 3 shows the percentage of the difficulty level of reasoning problems posed by students, both for essay and objective questions. In general, students made problems in the medium category, neither difficult nor easy. This indicated that the students tended to pose mathematical problems that were in line with the level of mathematics knowledge that they obtained during their school learning experiences. However, our findings showed that in each difficulty level, there were at least some problems made by students. Thus, the problem difficulty was evenly distributed.

Furthermore, problems posed by students have more than one solution or solution method. Table 4 showed that most students created an open problem both in the essay (70.58%) and in objective-type problems (82.35%). This

was reasonable since the presence of open-ended problems in a mathematics class is one of the characteristics of learning that involves Higher Order Thinking (HOT) (Yee, 2000). In addition, some research has shown good results in implementing open-ended learning in fostering students' reasoning (Bernard & Chotimah, 2014; Widiartana, 2018; Yee, 2000). Likewise, the non-routine problem was also limited to problems with concern on the complexity of employing formal mathematical structure as exemplified by Problem 7b, where judging which has optimum size causes minimum cost concern more on working on evaluating mathematical equation related to area and perimeter of a rectangle. Meanwhile, judging and reflecting on the position of a mathematical model which fits with any contextual information are not found in the tasks created by participants. Using this type of problem, teachers can more freely assess the extent to which students use heuristic strategies or just imitations of algorithms that often cause students to fail to complete assignments (Jäder et al., 2017).

The results of this study give a broader insight into how the teachers were prepared to be future mathematics teachers through a teacher education programme in a university curriculum. The insight was around the current situation of student teachers' knowledge of posing a 'good' mathematical problem, in which the revised Bloom's taxonomy may become indicators of the quality of the problem posed. The finding that the higher level of Bloom's taxonomy and the less proportion of mathematical problems posed by student teachers indicates that they need to be engaged in some interventions that can improve their performance. The interventions are not only needed to engage teachers to pose problems that satisfy the reasoning category, but also those encourage them to enhance their understanding of the mathematical topics behind the problem they would like to pose. This is due to the findings that the quality of teacher-posed problems is also influenced by teachers' conceptions of understanding certain mathematical content, where poor conceptions correlate with the low quality of the posed questions (Cai et al., 2015; Ma, 1999). Moreover, teacher beliefs are also considered to affect teacher performance problem-posing. In this regard, Li, Song, Hwang, and Cai (2020) found that teacher participants could perform well in problem-posing and had a number of different beliefs about the advantages and challenges of teaching through problem-posing. In addition, the intervention programme should also consider how research in problem-posing processes gives benefits the curriculum structure of training preservice teachers to pose practical mathematical problems due to the existing recommended problem-posing-related research concern about investigating connections between problem-posing and problem-solving and how individuals, including teachers, proceed the connections to pose mathematics problem

(Papadopoulos et al., 2022). In this regard, some intervention designers suggested that teacher educators improve student teachers' problem-solving skills to improve problem-posing skills (Leavy & Hourigan, 2019; Silver, 1994).

Furthermore, it is essential for teacher educators to encourage them to pose various mathematical problems covering real-life contextual, non-routine, and open-ended problems rather than routine problems (Unver et al., 2018). Crespo (2003), in this sense, asserted that teacher educators should provide student teachers with a learning environment that facilitates experience with non-traditional mathematical problems and encourages collaborative problem-posing activities.

Conclusion

The mathematics education students in this research were competent in the posing reasoning category, especially essay and objective question types. All the criteria used to conclude that the students were competent were fulfilled well. Both essay and objective questions corresponded to the indicators. The problems were arranged according to the criteria of reasoning ones, the problems which may have (a) solution(s), the completion of the reasoning problems made was correct, and the language used was in accordance with the understanding of students' levels.

The results of this study are also expected to have an impact on new insights about how to assess the quality of questions made by teachers more critically so that they can have an impact on the right form of intervention to improve the problem-posing ability of prospective teachers. We argue that the variations in the responses given by the respondents provide sufficient examples to distinguish which ones are at the level of reasoning and which are not.

The lecturers who teach assessment and evaluation lectures should try, as often as possible, to train all students to make the problems that meet the criteria of a reasoning problem, especially in the form of open problems with many solutions, so that they can apply this skill when they teach in school. Besides being trained to make the problems, the students should always be asked to check the truth of the problem by making an answer key or an alternative solution and checking whether or not the problems are solved.

The practical benefit of the results of this study is that readers, especially teachers, can realise the importance of using reasoning problems in learning mathematics. In addition, they have more learning experience about making math problems through studying examples of problems made by students presented in this paper. Teachers gain insight into how to write questions that meet

the criteria for reasoning problems while still considering the use of effective and understandable sentences and questions that can be solved by paying attention to student prerequisite knowledge. Furthermore, they can also learn how to make questions according to the indicators of the demanded questions.

Contribution to science

As implications of this research to teacher education, it is suggested that teachers design more questions at the evaluation level and think creatively because this is used to support student reasoning. Specifically for pre-service teacher education, prospective teachers also need to be given more and more profound opportunities to develop their problem-posing abilities more systematically in the education curriculum for prospective mathematics teachers. This is also supported by an emerging agenda related to evaluation models and current task design models, which are used as tools for assessing essential mathematical abilities, such as numeracy and problem-solving, specifically PISA model questions that are centred on students' authentic mathematics skills on problems from the real world to the formal world of mathematics.

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When Does "Too Early" Become "Too Late"? Reflections of Croatian Secondary School Educators on the Persistence of LGBT Taboos in the Education System

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The article presents one of the topics generated by a thematic analysis of data collected through a focus group process within the scientific research project LGBT (In)Visibility in School: The Educators' Perspective, which focused on the taboo position of sexual and gender diversity within the education system. In four focus groups conducted with secondary school educators in Zagreb, the participants identified certain key factors in perpetuating such a position: the understanding of the child/student as an innocent being whose sexual education should begin at a time that educators themselves are unable to determine, the perception of parents as barriers to the inclusion of topics of sexual and gender diversity in the curriculum, and the absence of a systematic, LGBT-inclusive approach to teaching about sexuality. The concluding part of the article discusses the limitations of the research conducted and makes recommendations for future empirical and practical coverage of this topic.

Keywords: educators, focus groups, LGBT-inclusive curriculum, parental rights, sexuality education

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Kdaj »prekmalu« postane »prepozno«? Refleksije hrvaških srednješolskih učiteljev glede trdovratnosti LGBT-tabujev v izobraževalnem sistemu

Marija Bartulović in Barbara Kušević

Prispevek predstavlja eno izmed tem, najdeno prek vsebinske analize podatkov, zbranih v fokusnih skupinah znotraj okvira znanstvenega raziskovalnega projekta LGBT (ne)vidnost v šoli: perspektive učiteljev, ki se je kot tak osredinjal na tabu spolne raznolikosti v izobraževalnem sistemu. V štirih fokusnih skupinah, izvedenih s srednješolskimi učitelji iz Zagreba, so udeleženci prepoznali nekatere ključne vidike, ki so vzrok za ohranjanje takšne pozicije: dojemanje otroka/učenca kot nedolžnega bitja, za katero se spolna vzgoja začne v trenutku, ki ga učitelji ne zmorejo prepoznati; umevanje staršev kot branikov do vključitve tematik, povezanih s spolno raznolikostjo, v učni načrt; primanjkljaj sistematičnega LGBT-inkluzivnega pristopa do poučevanja o spolnosti. Sklepni del prispevka obravnava omejitve opravljene raziskave ter predlaga priporočila za prihodnje empirično in praktično spoprijemanje s tematiko.

Ključne besede: učitelji, fokusne skupine, LGBT-inkluzivni učni načrt, starševske pravice, spolna vzgoja

Introduction

The topic of LGBT inclusivity within the education system – by which we mean the measure and quality of the responsiveness of the education system to the needs of LGBT individuals, including the representation of LGBT topics in the curriculum and the way in which they are explicitly and implicitly addressed in the school's culture – is insufficiently represented in Croatian empirical research (Pađen & Huić, 2021). The few empirical studies that do exist describe the heteronormativity and hostility of the Croatian social context in general and the education system in particular. Applying Meyer's model of minority stress to the Croatian context, Kamenov et al. (2015) summarise the empirical studies conducted to date related to the position of homosexual and bisexual people in Croatia and conclude that, despite a favourable legal framework, the propagated tolerance of the Catholic Church, the official comprehension of homosexuality as a variant of sexual orientation and the absence of extremely negative public attitudes towards the LGB community, the daily existence of LGB people is not entirely positive: "[t]he legal framework is not fully implemented in practice, the Church continues to condemn and does not condone the enjoyment of sexual relations, LGB people do not feel free to seek professional help and continue to experience violence and discrimination due to their sexual orientation (Bosnić et al., Jelić, 2013; Jugović & Ančić, 2013; Milković, 2013)" (Kamenov et al., 2015, p. 28). Using predominantly EU LGBT Survey data from 2012, supplemented by domestic empirical research, Vučković Juroš (2015) provides an overview of the dimensions of the social exclusion of sexual minorities in Croatia, and, following Šućur (2004, quoted in Vučković Juroš, 2015), analyses their position within a four-dimensional context: civic, economic, social and interpersonal. For the context of the present article, we are particularly interested in the social dimension, within which the author analyses the heteronormativity of the education and health systems, referring to studies that suggest neglect or inadequate treatment of LGBT topics in textbooks and the controversy over the introduction of the Health Education Curriculum (Brumen, 2012; Juras, 2013, both quoted in Vučkovic Juroš, 2015).

It is in public affairs, i.e., in the polarisation of the public around the Health Education Curriculum, that the persistence of taboos on sexuality in society/education, as well as the closely related negative attitudes towards sexual and gender diversity, can be detected. Although the Curriculum itself consists of four modules, the point of contention in the discussions surrounding it was only the fourth module, Gender Equality and Responsible Sexual Behaviour,[3]

3 Regarding the process of announcing the public call for the design of the Curriculum, the choice of programmes, the manner of implementation and the assessment of its constitutionality, see Bijelić (2008), Cvijović Javorina (2015), Kuštreba et al. (2015), Modrić et al. (2011) and Mrnjaus (2014).

whose content was perceived by a part of the public as an attempt at hypersexualisation and gender indoctrination of children (see Bekić, 2013). This resulted in the whole project being relatively unsuccessful. The most recent attempt to introduce the topic of sexuality into the Croatian education system is the adoption of the cross-curricular theme Health in 2019 (Narodne novine, 2019). In relation to the aforementioned Health Education Curriculum, this represents a step backwards: apart from intensely represented and, from a pedagogical perspective, highly reductionist medical discourse of sexuality, LGBT topics are completely omitted (Đaković & Novosel, 2020; Tomac, 2021), which for (LGBT) students is likely to have various negative consequences.[4]

Reports on the experiences of Croatian LGBT students indicate that "[t]he consequences of the absence of such content can also be seen in the problems that LGBT students face during education. According to a 2012 EU LGBT study, 31% of Croatian respondents often and always experienced negative comments or negative behaviour due to their sexual orientation or gender identity at the time of their schooling when they were under the age of 18. Likewise, 24% of respondents felt discriminated against by school or university employees in the past 12 months" (Vučković Juroš, 2015, p. 209). Based on available empirical data (Hodžić & Bijelić, 2012; Milković, 2013; Kovačić & Horvat, 2016; data from Zagreb Pride and CESI; all quoted in Jurčić, 2018), Jurčić (2018) considers schools to be unsafe places for LGBT students due to the presence of various forms of abuse and discrimination of sexual and gender minorities. The fact that educators also have a role in the production of this lack of safety is shown by the recent report Human Rights in Croatia: Review of the Situation for 2019, which addresses the problem of peer homophobic violence and the lack of adequate psychosocial support for LGBT students in schools; specifically, their fear of teachers' negative reactions in the case of reporting violence and consequently possible outing to parents without the student's consent (Đaković & Novosel, 2020). The previously described resistance to the introduction of sexuality education, that is, to the inclusion of LGBT issues in the education system, predominantly relied on the argument that parents possess a constitutional right to the value consistency of content to which students are exposed at home and at school (Bekić, 2013). In view of the considerable media presence of such discourse of 'parental rights', this may have contributed to the impression of overall parental resistance to any form of sexuality education for students. However, the results of research conducted on the basis of data collected in 2013 and 2014 on parents' attitudes to the

4 The effects of the experimental implementation of the Health Education Curriculum on the position of LGBT students in schools were not empirically verified. However, international studies show positive effects of LGBTQ-inclusive curricula on numerous aspects of students' wellbeing (e.g., Snapp et al., 2015a; Snapp et al., 2015b).

introduction of the Health Education Curriculum, which the authors supplement with an overview of related research conducted in Croatia (CRO Demoskop, 2013; Janković et al. 2013; Turčin, 2013; all quoted in Kuštreba et al., 2015), show that approximately three quarters of the surveyed parents actually support the curriculum. Although such results might initially seem surprising, a similar discrepancy between intense parental resistance to sexuality education represented in public and the lack of empirical evidence to confirm the massive scale of this resistance has been observed in various contexts (Depauli & Plaute, 2018; Peter et al., 2015; Robinson et al., 2017; Ullman & Ferfolja, 2016), although it should be noted that support for sexuality education is higher at the lower levels of the education system, which generally do not include explicit discussions of sexuality or sexual and gender diversity (Kuštreba et al., 2015; Ullman & Ferfolja, 2016). In view of all of the above, and in particular given the insight into whether parents differentiate between supporting content related to sexuality in general and content related to sexual and gender diversity specifically, we support Ullman and Ferfolja's (2016) suggestion regarding the need to conduct explicitly focused research on LGBT inclusiveness on nationally representative samples of parents before making educational-political decisions and intervening in the curriculum. However, for an in-depth understanding of the educators' perspective and the complexity of the need to find a balance between their personal and professional positioning on a daily basis, we consider qualitative studies conducted with educators equally significant. Educators possess different levels of competence and act in different micro-contexts. Moreover, they have diverse understandings of the rights of (LGBT) students and the various parental groups with which they collaborate. The aim of the present research is to analyse the different discourses that educators use when discussing appropriate modalities (content, methodical approach and timing) of addressing LGBT topics in education. More specifically, we wanted to address the following research questions:

1. Are LGBT topics presented in the participants' everyday pedagogical practice?
2. Which arguments dominate the participants' discourses when explaining the representation of LGBT topics in their everyday pedagogical practice?
3. Which period of the child's education do the participants recognise as optimal for addressing LGBT topics?

It is evident from the research questions that we approached the research topic without distinguishing the identity variations encompassed by the acronym LGBT, respecting the strong intertwining of sexuality and gender, i.e., sexual and gender diversity, which is why the aim was not broken down into specific research questions dealing with the representation and perception

of the identity groups associated with the acronym (e.g., the representation of transgender topics in the curriculum). Such an approach has been the subject of elaborate criticism aimed at its role in perpetuating the invisibility of transgender students in the educational process (see Dugan et al., 2012; Greytak et al., 2009; Meyer, 2022). However, our research was carried out in a research context in which the empirical approach to sexual and gender diversity is in its infancy, so we consider this approach a justified methodological choice.

Method

The data presented in the present article were collected as part of the scientific research project LGBT (In)Visibility in School: The Educators' Perspective, which employed a focus group procedure. Four focus groups were conducted with a total of 27 staff members from secondary schools in Zagreb.[5] The four schools included in the research responded to an invitation to participate in the research sent to all secondary schools in the capital in three rounds. Due to financial limitations and the assumption that schools in smaller communities could be even more reluctant to participate in the research, we decided to conduct it in the capital city, where all three researchers work. The collected data were analysed using thematic analysis (Braun & Clarke, 2006), differentiating a total of five themes.[6] In this article, we present a theme that covers the polarity of the premature or belated addressing of sexual and gender diversity in education with

5 "In October and November 2019, we conducted four focus groups with secondary education staff (teachers, principals, librarians) from four secondary schools in the City of Zagreb, which included a total of 27 participants (6 in the first, 6 in the second, 7 in the third and 8 in the fourth focus group). This was a convenient sample, formed in secondary schools which accepted our invitation to participate in the research. We moderated the focus groups ourselves (in pairs or in all together) according to a protocol developed for the purposes of the study. The shortest focus group lasted about 60 minutes, while the longest went on for about 90 minutes, depending on the time available to the participants in the study, to which we adjusted the study protocol and the range of topics that were addressed in individual focus groups." (Bartulović et al., 2023, 6)

6 "All focus groups were fully transcribed by students of pedagogy, fully acquainted with the ethical aspects of dealing with recordings and transcripts. The transcripts were then processed using thematic analysis (Braun & Clarke 2006), in the following sequence: familiarizing with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report (for more details on thematic analysis, see Braun & Clarke, 2006, and Braun et al., 2019). Initially, each of us carried out the first two phases independently, after which we agreed upon codes on which to perform further data processing. The search for topics, their revision, definition, and naming, as well as the preparation of study reports, is the result of joint work by all three authors. Finally, we generated a total of five thematic units: *discourse of 'professionality' vs. teacher responsibility; micro-context vs. macro-context of school; homeroom teacher as a homophobe or a haven; teacher as a technician or an intellectual; and taboo themes – sooner or later.* (…) All phases of the study were conducted in accordance with the ethical principles of conducting research in the social sciences, taking into account the prompt obtaining of permits, voluntary participation, securing participants' informed consent, deleting the recordings after transcription and storing the anonymized transcripts separately from the research consents." (Bartulović et al., 2023, pp. 6–7)

regard to the chronological and developmental age of the child/student. A detailed description of the methodology is available in Bartulović et al. (2023). We want to emphasise the fact that, due to the specific subject areas that some of our participants teach, providing information about them could jeopardise their (and their schools') anonymity, possibly resulting in negative personal and professional consequences. In the interest of adhering to high ethical standards, we therefore decided to exclude demographic data on the participants. We consider this decision appropriate given that the emphasis in the present paper is on the detection of different lines of argumentation that appeared in group discussions, and not on the analysis of how each identified line of argumentation is connected to certain identity markers of the participants.

Results and discussion

We have dealt with the taboo of sexuality in educational institutions before (Bartulović & Kušević, 2020), having analysed it within the context of "the prevailing discourse of sexuality, characterized by the developmental line of nonsexual gender conformed child – unstable hypersexual sometimes gender nonconformed adolescent – stable and discrete gender conformed heterosexual adult" (Bartulović & Kušević, 2020, p. 133), whereby we discussed the importance of parental resistance to explicit LGBT inclusiveness at the lower levels of the formal education system, as well as structural barriers in the form of insufficient teacher preparedness to address a topic that is recognised as the exclusive domain of parental intervention (Bartulović & Kušević, 2020). Continuing with the line of thinking about sexuality within the education system that was established in the previous study, in the present article we analyse three arguments that repeatedly appear within the focus groups as explanations for the persistence of LGBT taboos in education: 'child innocence', 'parental resistance' and the lack of a systematic approach to LGBT inclusivity in education. We see these subthemes as part of one main theme focused on the optimal timing for addressing LGBT topics in education: each of the subthemes thoroughly describes one line of resistance/constraints to the introduction of LGBT topics in education, which is why the optimal timing for addressing them becomes *never*, thus enabling the persistence of LGBT taboos in the education system.

The argument of 'child innocence'

The argument of 'child innocence' often appears in studies that place sexuality in an educational context, as a lens for understanding the complex relationship

between social attitudes about sexuality and the way in which it is (or is not) institutionally mediated. Different authors note that the predominantly represented approach to sexuality education stems from corresponding social discourses that view sexuality in the context of childhood as unimportant, developmentally inappropriate and threatening to children (Renold, 2005; Davies & Robinson, 2010; Egan & Hawkes, 2010; Egan, 2013; Robinson, 2013; all quoted in Robinson et al., 2017). A qualitative study conducted with Australian parents, which sought to explore their understanding of sexuality education at home and at school (Dyson & Smith, 2012), found that some parents, in an effort to protect their child's 'innocence', delay talking to their children about sexuality until puberty, which is recognised in the literature as the problem of *the myth of 'the sex talk'* (Walker, 2004, p. 246). The described problem of perpetuating the taboo of sexuality is also recognised by the participants in each of the focus groups conducted:

> *It's a taboo,[7] it still is… (…) But we're all going to pretend that's all… it's all OK. But we don't really have to talk about it.*

> *We all pretend that they are not… as if this is not happening, as if there is no sex life, as if they really are on their wedding night, when they swear at the altar that they will be together as long as they both shall live, that before that there is nothing, but there is, although…*

This taboo status was confirmed in each of the four conducted focus groups. Although the research participants were critical of this taboo, as can be seen from the quotations above, the data reveal a lack of consensus on whether the taboo should be destabilised as soon as possible or as late as possible. The participants believe that the beginning of sexuality education, including education on sexual and gender diversity, is delayed in secondary school. They identify a possible correction of this in the introduction of comprehensive sexuality education from an early age:

> *I think the problem comes from primary school, that they come to us already…*
> *Formed.*
> *(…)*
> *… to start building a skyscraper from the fifth floor, one that needs a foundation…*

7 In line with this quote, in the present paper we approach taboo in a colloquial way, as a topic that is undesirable and unspeakable, placed in the sphere of the private, of the hidden curriculum.

Definitely, primary school and secondary school are two different worlds. In general. Since the law exists in order for the legislation to operate henceforth, forwards, not backwards, then everything should start from scratch. And you can't dig, I don't know, for poles, and you're pulling wires through the air. That's… nonsense.

But, in my opinion, personally, such attitudes should start to form in preschool age already. (...) And actually from, from an early age, to teach children that it's something that is OK, that is a part of life, that is acceptable, that is simply a part of the world from time immemorial, right, it is what it is.

Although the positive effects of a comprehensive approach to sexuality education that teachers have consistently advocated are abundantly documented in the scientific literature (Depauli & Plaute, 2018), it would be interesting, given that we are dealing with secondary school educators, to see whether they would be advocated by the educators at lower levels of the system. We asked ourselves this question having noticed an interesting paradox: although the teachers criticised the taboo nature of the topic, which prevents them from talking about it openly with students and advocated the necessity of addressing it as early as in the preschool context, in some of the focus groups a secondary school student was, without any discussion, presented as a highly sensitive being with whom sexual and gender differences should be discussed with caution:

Where it's actually somehow made known that he [a writer discussed in class] and his companion weren't just friends, that they were more than that. Now, do we go into it further than that? We don't. Why? They are children. Some things very often, when you let them go, end up going in a significantly different direction. Third grade, for example, is much better for me.

It's still a major, major taboo in society, and especially for children at that... I mean, they are very sensitive at that age...

(…) they deal with it at the age of fifteen or sixteen and they're not ready to face such things at all because it creates an aversion for them. Because at that age they're not ready to talk about such things through work at all.

Shannon and Smith (2017) see this as a construction of an oppositional narrative based on pairing the image of an innocent child with a threatening concept of sexual and gender diversity.

We consider the understanding of students described in the quotes above by some focus group participants to be significant from a pedagogical perspective, as each image of the child is productive: we position ourselves in a pedagogical relationship according to how we see the child and how we assess his/her educational capacities (Bašić, 2011). When it comes to the topic of sexuality, the described tendency to hyperinfantilise students and postpone formal sexuality education due to their alleged unpreparedness and 'sensitivity' leads to a situation in which *too early suddenly becomes too late*, that is, in which the daily life of secondary school students is not accompanied by adequate educational support:

> *So… We don't even know what homophobia is. It's the fear of people… In the third grade of secondary school… Therefore… I touch on such things here, but do I have something prescribed in the curriculum in particular? No.*

> *Then you tell them why gay pride is even held at all, which is also something I have to explain.*

In all of the focus groups, parents were presented as particularly ardent guardians of the image of the 'innocent' child. In the analysis of parental resistance to LGBT-inclusive teaching, however, we also recognise certain polarities.

The argument of 'parental resistance'

The participants in all of the focus groups agree that parental influence on how a child's attitude about sexual and gender diversity will be shaped is crucial:

> *Well, I'd say, I've been employed in education for six years now, so I'd say that in general the most important factor, not just about the LGBT issues but on the level of the whole society, actually the biggest pressure and the biggest responsibility is on the parents. When you talk to a child in, say, the second or third grade of secondary school and they expresses some of their attitudes, then their parent comes to you and it becomes clear who shaped those attitudes. Or the parent doesn't come to you, or they never show up, you never meet them, and then you understand why the child is in such a direction. So I think that parents have the greatest influence on the child, especially in early childhood, perhaps so that… that the first question of*

empathy arises here. Therefore, someone who was raised to develop empathy will certainly not condemn members of the LGBT community, if they were raised in that way from the very beginning.

Recognising this crucial importance of parental influence, it is not surprising that the participants' statements are saturated with the argument of parental resistance, which was present in each of the focus groups:

Some parents would even come to us…
(…)
…and say: "My child won't listen to this because it's not something my child does…", there.

Yes, but again, if there are parents… I mean, in the end it all comes down to the parents. If someone shows up again who disagrees and applies pressure and then it ends up in the media and then it's all finished. I mean, there's always things like that, you know: "A scandal in a reputable institution", or something of the sort.

This argument is very common in the literature as well (Flores, 2014; Eisenberg et al., 2012; Reis & Seidl, 1989; UNESCO, 2009; all quoted in Peter et al., 2015; Martino & Cumming-Potvin, 2016; Duffy et al., 2013, Milton, 2010, both quoted in Ullman & Ferfolja, 2015). From the findings of our research, however, it cannot be concluded that parental reactions were on a large scale or strong. This corresponds to the findings of authors who speak of a *vocal minority* (Eisenberg et al., 2012; Horn et al., 2013), that is, on the *three-parent syndrome* (Martino & Pallotta-Chiarolli, 2003; quoted in Ferfolja & Ullman, 2017, p. 350), which warns that teachers may perceive parental resistance as stronger or more large scale than it actually is. This is understandable because it carries a risk for both the teacher individually and the institution as a whole, as can be seen from the last quote above. In our research, however, a teacher who integrates topics of sexual and gender diversity into her teaching offered the opposite perspective:

I've never had parents report that I did something… maybe they have, but I've not heard about it… that I did something wrong or that I hurt anyone and so on (...).

Empirical studies addressing parental attitudes about sexuality education in general, and education about sexual and gender diversity in particular, in very

different social contexts suggest that the majority of parents want sexuality education of high quality for their children (Ferfolja & Ullman, 2017; Peter et al., 2015; Robinson et al., 2017), although some expressed fear of too much information, that is, the need to protect the aforementioned 'innocence' of the child (Dyson & Smith, 2012). As noted in the Introduction, the topic of parental attitudes towards sexuality education has been an area of study in the Republic of Croatia as well (Kuštreba et al., 2015). In a hitherto unmentioned study, a sample of 1,673 parents of primary school sixth-graders were surveyed on their attitudes towards sexuality education and the factors associated with those attitudes. The results show that most parents consider sexuality education important and necessary, including the topic of homosexuality, which, at the level of the upper grades of primary school, is considered important by 57.9% of surveyed mothers and 59.1% of surveyed fathers (Janković, 2011).

Although parental support, as we shall discuss in the Conclusion, is important for the implementation of this part of the curriculum, Kuštreba et al. (2015) stress the importance of focusing on the students themselves, that is, on the right of young people to relevant, scientifically based information on sexuality (Breaken & Cardinal, 2008, as quoted in Kuštreba et al., 2015). This brings us to the question of the relevance of parental resistance in thinking about the right of young people to sexuality education. At no time did the participants in our focus groups invoke the parental right to decide whether a student should be exposed to topics of sexual and gender diversity in school; in fact, as will be shown in the following section, the dominant position was that there is a need for systematic access to these topics at the lowest levels of the education system. In one of the focus groups, it was even stated that parents, in order to better support the school's endeavours, should be *forced* into such education. However, studies often consider the valid legal right of parents to exclude their children from classes involving mediating content about sexuality that the parents deem inappropriate (Bialystok, 2018; Robinson et al., 2017; Ullman & Ferfolja, 2016). This option is based on the perception of parents as the exclusive, or at least primary, holders of the right to sexual education of their 'own' children. The questioning of this right is discussed in the works of some Croatian authors (Jakovac-Lozić, 2020; Rukavina Kovačević, 2014), which emphasise the validity of parental rights in various Croatian and international documents[8] (where, we believe, a more extensive elaboration of the relationship between parental rights and the rights of the child is lacking, as is a more elaborate discussion on

8 For an overview of the relevant Croatian and international legislative framework, based on which the author establishes the necessity of respecting parents' religious and philosophical beliefs in the upbringing and education of children, see Hrabar (2018).

the complex relationship between the legislative and pedagogical perspectives on this issue).

However, certain authors question the existence of something that could be called the fundamental rights of parents (Bialystok, 2018; Howe, 2001; Montague, 2000; Westman, 1999), pointing out: "My position is that it is children who have fundamental rights and it is parents who have duties and responsibilities to provide for the rights and best interests of their children. While we may assume that parents have certain rights, they do not have fundamental rights *qua* parents. The rights they do have are delegated to them by society and are dependent on the fulfilment of their obligations to their children" (Howe, 2001, pp. 61–62). In their discussion of students' rights to sexuality education, Ferfolja and Ullman (2017) focus precisely on the child as an individual being and his/her right to education about human sexuality (Clarke, 2011, as quoted in Ferfolja & Ullman, 2017), which they do not perceive as a question of value, but as part of the right to education. The right of children to sexual education is indirectly manifested in the relational character of sexuality, that is, in the fact that it is, among other things, lived through peer relationships. Bialystok (2018) therefore observes that parents cannot employ their own value system to decide on the type of content, as the absence of this content from the formal curriculum could have detrimental consequences for other people's children as well. Nothing that has been mentioned so far leads to the marginalisation of the parental position in the process of implementing education for sexual and gender diversity; quite the contrary, especially bearing in mind earlier results showing that the more informed parents are about sexuality education, the more they generally want and support its implementation for their children (Kuštreba et al., 2015). This points to the necessity of finding an empirically articulated optimal strategy for the collaborative involvement of parents in the process (Bialystok, 2018; Eisenberg et al., 2012; Eisenberg et al., 2008), which would recognise them as the most committed advocates of their children's interests, but not as the holders of parental rights independent of the children.

The argument of the 'top-down solution'

The paradoxical moments identified in the first two subthemes (the preschool child as a being who should be introduced to sexual education vs. the secondary school student as a particularly sensitive being with whom certain topics should not be addressed; real vs. assumed resistance of parents to the introduction of LGBT topics in education) also pervade the third subtheme, which shows the participants' recognition of their own responsibility for the

implementation of LGBT themes, but with a simultaneous focus on solutions from above, i.e., the decision of the ministry. Such a decision would, after all, solve the problems related to polarities identified in the first two subthemes. The three lines of argumentation of the subthemes in their synergy describe the subtle mechanisms by which the LGBT taboo in education is maintained.

Concluding that LGBT topics are not visible at all in the official curriculum and the materials they use, as well as that broaching such topics would depend solely on the will and creativity of each individual educator (recognising that some subjects and some types of school culture are more suitable for this), the participants in all of the focus groups emphasised the importance of political will in the process of formalising LGBT content in the curriculum as early as possible, that is, the responsibility of the institutions in charge to provide a formal framework for teaching about sexual and gender diversity:

> *Because it all starts at a slightly higher functional level, right, the level of state politics, in order to get to such things at all, because that's the thing, everyone should change these things from the top.*

The participants view the presence of LGBT content in the curriculum as a form of removing the taboo status of the topic:

> *Through, yes, very, very small steps. (…) You know when you're actually more or less unaware of all the commercials you come across during the day? In fact, you're actually unconsciously absorbing something. That's how a society as a society will unconsciously absorb the fact that a certain question is normally asked, that it's legal in a textbook: "What do you think about this and this…?", that this will be equal to such approaches. This unconsciously, simply unconsciously moves in small steps towards some surely better position in all this.*

This serves as a form of protecting the educator, who would be given the legitimacy to broach LGBT topics in their teaching through an official curriculum that explicitly addressed such topics, but also as a form of corrective for the attitudes of educators whose personal position is not LGBT inclusive:

> *As soon as such an issue is in one of the textbooks, then it's – aha, this is a textbook that has been prescribed, that is here for us, that the government has sanctioned, or the ministry (…) so I'm talking about some kind of authority that needs to approve something in order for it to be in the*

> *textbook, in the schoolbook that is prescribed to them there. Now, would a teacher, who agrees or disagrees with it… she should give a lecture within a specific situation that explains that it's the same as a different religion, different skin colour, that too is the same. We need to simply get to that level as a society. There, that's what I think. And that can certainly be done in small steps. Because when it's imposed on someone, when it's in someone's curriculum, that is, when it's part of someone's teaching plan, then this somehow either equalises things, positions them in a more tolerant way, and that's it.*

Emphasising the importance of including LGBT content in textbooks is in line with the results of a survey of teachers' and parents' attitudes towards sexuality education in Austrian primary schools, where teachers specifically stressed high-quality didactic materials that can support teaching about topics they perceive as challenging as the factor with the strongest influence on the successful implementation of sexuality education (Depauli & Plaute, 2018). In the same study, parents stressed the quality of teachers' preparedness to teach about sexuality as the strongest factor in the success of sexuality education (Depauli & Plaute, 2018). In focus groups conducted in different contexts in Australia, parents also stressed the importance of institutional and managerial support, that is, the unacceptability of leaving the decision on whether to include LGBT content in teaching to the individual teacher (Ullman & Ferfolja, 2016). In addition to the support shown by umbrella institutions, Flores (2014) and Payne and Smith (2018) emphasise the important role of school leadership, which can function as a gatekeeper to its employees' professional development through its misunderstanding of the relationship between LGBT stigma and academic success, believing that such a form of professional development is unnecessary in their context, that it would encounter various forms of resistance, or that the teachers would not even be interested in it (Payne & Smith, 2018). Eisenberg et al. (2012) place such support from principals at *the institutional level*, using an ecological model in their analysis of sources of support and barriers to sexuality education. Furthermore, in all reform efforts to increase the level of LGBT inclusion of schools, it is also necessary to consider *the interpersonal level*, which primarily refers to the potential of parental support, i.e., resistance, which was discussed in the previous section, as well as the *social level*, which addresses the issue of educational policies and broader societal attitudes to LGBT issues (Eisenberg et al., 2012). Hence, the responsibility for shaping the LGBT inclusive culture (school) cannot be located within one actor. This was also recognised by some of the participants in our focus groups:

So I think, in principle, that it should be everyone, since everyone is [responsible] for children…
The whole society.
(…)
So, starting with the teacher, the professional service, the textbook, the teaching plan.

If we all have the well-being of the students in mind, then we all need to have that in mind as well. I think the responsibility lies with everyone.

Such an approach requires teachers to assume an engaged position, which, in exceptional situations, may even be more progressive than any centralised policy. In a study by Eisenberg et al. (2012), some teachers, when asked about the need for legal regulation of sexuality education, stated that they oppose such an initiative, believing that it jeopardises the progressive practices that engaged teachers, guided by their intrinsic motivation and the principle of justice, already implement in their schools (Eisenberg et al., 2012). Along these specific lines, we consider particularly productive the position expressed in one of the focus groups, which calls into question the hierarchical relationship between the ministry in charge and the school in situations where ministry support to raise the level of inclusive education is inadequate:

I mean, it should all actually start from the umbrella institution, it should start from the ministry, and I even somehow think that it's our duty as educators, as people involved in the educational process, that if we see omissions coming from the ministry, then somehow, from that human side, we need to actually point out these things if we see that they are missing from the curriculum, from the teaching plan and so on, we nonetheless, in a way that is close to children, acceptable to children, that does not exclude, that, I mean, works hard on acceptance, tolerance, as well as understanding, I think that it somehow must be our duty to include this as well.

Such a position recognises that waiting for a solution from above can be an alibi strategy for avoiding pedagogical responsibility, which we consider extremely important in contexts such as Croatia, where, as is clear from the data presented in the introductory section, such interventions from above are unlikely to occur in the near future. Discussing the optimal way to implement reforms in education, Fullan (1994) points out that systems do not change by waiting for change at a certain level of the system, but by the activity of the

individuals who make up the system,[9] by their forming alliances and synergistically insisting on change (Fullan, in print, as quoted in Fullan, 1994). The more interconnected and harmonised the different levels are, the more certain achieving change becomes, which is why the synergy of *top-down* and *bottom-up* approaches is considered optimal (Fullan, 1994).

Conclusion

In this article, we have presented three arguments that strongly moderate the performance of our focus group participants in the domain of LGBT-inclusive teaching, making them susceptible to maintaining the status quo, more so than is perhaps required by the circumstances described in this study. Regarding the argument of children's innocence and the top-down solution, the participants expressed different opinions about the optimal modalities for overcoming LGBT taboos in education. Considering that the research was carried out in secondary schools, it would be interesting to investigate the attitudes of educational workers at the lower levels of the education system on the optimal timing for the introduction of systematic sexual education. The views of early childhood educators, professionals who work with children at an age when they are perceived as asexual in conservative discourse, seem particularly significant in this regard. Their views would contribute to the understanding of the issues discussed in this paper. This is particularly true due to the different construction of the autonomy of education workers at different levels of the Croatian education system, whereby the system of early childhood education is strongly characterised by the positioning of the educator as a reflexive practitioner who is minimally reliant on top-down instructions. Their views on the second subtheme, the role of parental resistance in preserving LGBT taboos in education, could also be valuable due to their daily interactions with parents.

The data show that in order to overcome the taboos of sexual and gender diversity in education, it is especially important to address the issue of the relationship between parents and school. Some of the possibilities for collaboration with parents in this process described in the literature include workshops for parents, organising debates, school-parent dialogue with relevant institutions and

9 An example of such teacher engagement in a school context that is not yet LGBT inclusive is described by Martino and Cumming-Potvin (2016) in a case study of a Canadian teacher, who, similar to the attitude of one focus group participant in our research described above on the importance of letting the LGBT topics in 'through small pores', chose a strategy of *educational moments* made up of consciously using every recognised opportunity to include LGBT topics in teaching, most often encouraged by student interest. The function of this approach was to normalise LGBT topics, but also to protect the teacher from excessive parental supervision and potential professional sanctions.

NGOs, parent participation in curriculum evaluation and revision, and building a trust-based school culture between teachers and parents (Bialystok, 2018; Eisenberg et al., 2008). In our focus groups, none of these forms of initiating parent-school collaboration was mentioned, which we see as a potent field for further research and practical interventions based on such research. Although we recognise the complexity of all of the challenges that may arise, which result from attempting to find a balance between recognising parents as the child's primary caregivers and the needs and rights of children/students or society as a whole, we believe that parental resistance should never call into question LGBT inclusiveness in education. Our reasoning follows the arguments of Bialystok (2018, p. 22), who considers making parental homophobia part of public education unacceptable, because "views that contradict liberal equality should not translate into public policy and are not deserving of special accommodation. In our context, it likewise seems important to reach an expert consensus as soon as possible on whether parents should be able to influence parts of the curriculum concerning the rights of their own children, and always also of other people's children, so that by perpetuating discussions about the acceptability of LGBT-inclusive education we would not also perpetuate sexual and gender diversity as controversial topics (Ferfolja & Ullman, 2017), especially in a situation where, as described in the present article, the silent majority of parents do not share such an attitude.

As the authors of this article, we share the view that parts of the curriculum corresponding to the principles of equality and non-discrimination, which are woven into the foundations of our society, should not be the subject of parental questioning. This does not mean that collaboration with parents in the implementation of this curriculum is unimportant (the importance of a high standard of collaboration between the family and school in a multilevel approach to the implementation of sexuality education has been empirically confirmed by, for example, Eisenberg et al., 2012). However, in a context where parental influence is necessarily limited, insisting on collaboration leads to the danger of reducing it to a kind of coerced and at least illusory parental support for decisions already made by the school, which we consider to be an inappropriate positioning of family-school relations. The relationship between family and school in such situations should therefore be considered carefully: the school should take responsibility for shaping its LGBT-inclusive culture, but it should also take responsibility for dialogically addressing mutual fears, dissatisfactions, risks and possible courses of action. These responsibilities are the domain of *both parents and educators*, and it is the interconnectedness of these two groups, configured in various ways, that creates micro-contexts with specific needs and corresponding modalities of possible courses of action. It seems particularly

important to keep in mind that the dyadic nature of this relationship is actually illusory, and that the primary subjects of LGBT-inclusive education are actually students, although the importance of their attitudes, interests and needs is rarely mentioned even in scientific sources (Shannon & Smith, 2017). The empirical coverage of their perspective, for which, according to established standards of research in the social sciences, it is generally necessary to obtain parents' active consent, brings us back to the necessity of a systematic approach to removing the taboo from the topic of sexual and gender diversity in education.

The conducted study has several limitations. As described in the paper that presents the second theme generated by the conducted research, we recognise its limitations as the insufficient heterogeneity of the focus group participants, their self-selection and the consequent supporting attitudes towards sexual and gender diversity; conducting the research exclusively in the capital city; and the extensiveness of the focus group protocol, which made it difficult to explore certain topics that opened up in the conversation more deeply (Bartulović at al., accepted for publication). We also view the lack of the conceptual demarcation of sexuality and gender addressed in the Introduction as a further limitation.

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Reflexive Practice Learning as the Potential to Become a Competent Future Practitioner

Tadeja Kodele*[1] and Nina Mešl[2]

The article presents an example of social work education, in which reflexive practice learning was used to help students work competently in professional practice. Within an action research project, new forms of mentoring support for students working with families facing multiple challenges were developed as part of their practice learning. This paper presents the results of a qualitative analysis of the students' reflections on mentoring meetings. Content analysis was used for data analysis. The analysis shows that practice learning should be framed as a reflexive dialogue between mentors and students. Students need opportunities to share experiences and expand their knowledge with other students in small mentoring groups. The continuous and concrete support that the mentoring group provided to the students in practice enabled them to deal with the sense of uncertainty that often arises in collaborative processes of help.

Keywords: mentoring, practice learning, reflexive approach, theory of social work

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Refleksivno praktično učenje kot priložnost za prihodnje kompetentno delo v praksi

Tadeja Kodele in Nina Mešl

Članek predstavlja primer izobraževanja na področju socialnega dela, v katerem je bil poudarek na refleksivnem praktičnem učenju kot pomoč študentkam in študentom za kompetentno delo v praksi. V okviru akcijskega raziskovalnega projekta smo kot del praktičnega učenja razvili nove oblike mentorske podpore študentkam in študentom, ki so sodelovali z družinami s številnimi izzivi. V članku so predstavljeni izsledki kvalitativne analize refleksij mentorskih srečanj. Za analizo podatkov smo uporabili vsebinsko analizo. Ta je pokazala, da je treba praktično učenje oblikovati kot refleksivni dialog med mentoricami in mentorji ter študentkami in študenti. Študentke in študenti potrebujejo priložnosti za izmenjavo izkušenj in razvijanje znanja z drugimi študentkami in študenti v majhnih mentorskih skupinah. Kontinuirana in konkretna podpora, ki jo je mentorska skupina zagotavljala študentkam in študentom na praksi, jim je omogočila, da so se spopadli z občutki negotovosti, ki se pogosto pojavljajo v sodelovalnih procesih pomoči.

Ključne besede: mentorstvo, praktično učenje, refleksivni pristop, teorija socialnega dela

Introduction

It has always been a challenge to provide an education that equips students for their future careers. Both the social sciences and the natural sciences are concerned with this (Bates 2007; Bogo, 2010; Garcia-Aracil et al., 2021; Hernandez-March et al., 2009). In the present article, an example of education at Faculty of Social Work, University of Ljubljana (hereafter: FSW) is presented. The thesis is that social work cannot be learned simply from books, while practical experience without theoretical knowledge is also insufficient. Many authors (Bogo, 2010; Burton, 2015; Kourgiantakis et al., 2018; Sicora, 2019) point out that social work students consider practice learning as one of the most important components of education to prepare them for the transition to the world of work. Several studies (e.g., Trede et al. 2012, Engelbertink et al., 2022) also find that practice learning is the most critical factor in strengthening students' professional identity. However, Shulman (1998) notes that the responsibility of developing professionals is not only to apply what they learn to practice, but to transform, adapt, blend, synthesise, critique and invent practice in order to move from the theoretical and research-based knowledge of the academy to the kind of clinical practice knowledge required for professional practice.

The question of how to support social work students during their studies to ensure that they have sufficient knowledge for competent fieldwork has been on the minds of those who design the study process and practice learning for many years. Simply increasing the number of practice hours during the social work programme is no guarantee that students will be truly equipped to work competently in the field. More important are the opportunities they receive to learn in practice (Papouli, 2014; Parker, 2007). A variety of strategies are being or have been used in social work programmes to address this issue, e.g., audio/video recording of practice sessions in class (Asakura et al., 2018), field seminars (Fortune et al., 2018) and the inclusion of service users in training (Mackay & Millar, 2012). The theme of supporting students to competently conduct social work with families facing multiple challenges has also guided the way we have designed practice learning, first as part of the project Helping Families in the Community: Co-Creation of Desired Changes for Reducing Social Exclusion and Strengthening Health, and then after its completion. While there are many ways in which social work programmes attempt to deal with this issue, the context of practice learning, supported by reflexive dialogue about one's experiences, use of theoretical knowledge, etc., provides opportunities to develop a professional working framework as a foundation for becoming a competent reflexive practitioner.

The present article begins with an overview of the reflexive approach and its importance for the development of practice learning in social work. By analysing the collected material on faculty mentor[3] support for students, the empirical part of the article seeks to identify the types of support students need during their practice learning in order to work effectively with families who face multiple challenges in social work practice.

The need to develop new knowledge and use knowledge reflexively in social work

The gap between theory and practice in social work has received considerable attention in research and is a frequent topic of discussion in social work (Argyris & Schön, 1974; Clapton et al., 2008; Mešl, 2008; Parton & O'Byrne, 2000). This discrepancy arises primarily from the difference between what social work students learn in their studies and what they experience and witness while working in the field. It often seems that theory development is the exclusive province of academics and practice development is the province of practitioners (Shulman 1998; Thompson, 2000). Yet, if social work as an applied science is truly to serve its fundamental goal of improving the situation of people seeking help, collaborative dialogue between theory and practice must be established. In linking theory and practice, the concept of reflexivity has become increasingly important in social work (D'Cruz et al., 2007; Healy, 2005; Mešl, 2008; Taylor & White, 2000), especially as it relates to working with uncertainty (Parton & O'Byrne, 2000). In the literature, there are different definitions and uses of the terms reflexive and reflective.[4] In the present article, we use Taylor and White's (2000) definition of reflexivity. Our focus in the project was the application and development of social work knowledge in practice. We wanted to address the so-called theory-practice gap that has existed in the field of social work for far too long. Unfortunately, it is still the case that, for various reasons, social workers refrain from the explicit use of knowledge in practice; the use of concepts, guidelines and strategies seems to be only partial and unreflective, and it is supplemented by non-professional, often prevailing common-

3 There are various terms for mentors at the faculty and in field placement: supervisors, instructors, mentors, advisors. In this article, we use the term faculty mentor for the mentor at the faculty and field mentor for the mentor in field placement.

4 For example, according to social work authors Fook and Gardner (2007), to be reflexive is to understand that all human aspects, including physical condition and psychological states, age, past experiences, social position and culture, influence the way knowledge is perceived and created. Thus, being a reflexive practitioner means deliberately and continuously questioning oneself (in terms of perception, interpretation, decision-making, values, feelings, actions, etc.) about the assumptions that underlie one's knowledge in social work and how one uses it in the context of academic and practice learning.

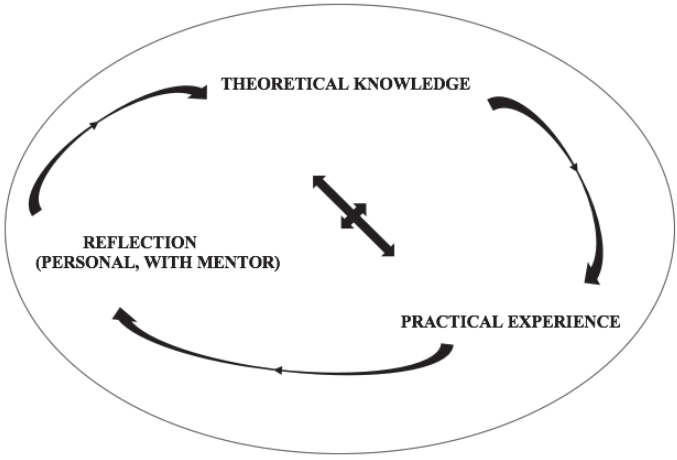
sense approaches, giving the impression that the boundaries between the profession of social work and the various informal forms of psychosocial support are blurred (Čačinovič Vogrinčič & Šugman Bohinc, 2000). We recognised a way to bridge this gap in a reflexive turn to the application and development of knowledge (after Taylor & White, 2000). This approach emphasises the fact that we use formal theory in practice but are also actively involved in its creation. It is not about simply applying theoretical knowledge, but about reflexively and consciously using and extending it (Mešl, 2008). According to our understanding, in this process the social worker constructs the existing theoretical knowledge for herself in such a way that it can form a clear basis for her work; she can articulate her work and also contribute to new insights and further knowledge development. We wanted to encourage this process in students.

Schön (1991) made the assumption that competent practitioners generally know more than they can tell about their work. We believe that this assumption also applies to social work: competent social workers generally know more about the quality of social work practice than they can verbalise. Thus, social work needs to take a step forward. We need knowledge and words to describe our work, to express to our users what we are doing and what our next step will be, so that we can explore all of the possible steps with them. Only in this way we can ensure their participation in work processes that lead to desired outcomes. These work processes are good because we have created them together with people, with experts from experiences (Mešl, 2008).

Figure 1 shows the conditions for reflexive learning that we create with a circular process of learning and knowledge development. We believe that this is necessary in the study of social work and in the daily practice of every social worker. Figure 1 may appear to be related to Kolb's model (1984), but our model has slightly different emphases. We start from the assumption that competent practice requires theoretical knowledge on which the practitioner relies in a concrete practical situation. It is important to help the practitioner to reflect on practical experience in relation to theoretical knowledge, in order to help them to make tacit knowledge as explicit as possible, to articulate their knowledge and to take a step away from the so-called common-sense approach. The focus is on reflecting on theoretical knowledge and an approach based on established theoretical concepts, as well as developing new knowledge and new approaches in practice.

Figure 1

The circular process of theoretical and practical upgrading of knowledge



The need to reflect on our own practice and develop new knowledge to enable social workers to co-create new responses to people's everyday challenges becomes even more evident when we work with families who face multiple challenges. Social work with a family is considered a complex area of work, with complexity resulting primarily from the intertwining of the different issues, levels and realities that a social worker and the family or family members encounter during the processes of co-creating social work solutions. Complexity also results from the fact that social workers do not have predetermined answers to the desired outcomes of a family or its members, as the desired outcomes have yet to be co-created (Čačinovič Vogrinčič & Mešl, 2019). Families facing multiple challenges are those who face a variety of external and internal stressors and problems in their daily lives (e.g., poverty, unemployment, social exclusion, school failure, violence, addiction), all of which increase the complexity of social work with families. This creates new challenges for social workers. Due to the accumulation of various types of distress that a family must cope with, social workers often feel helpless and incompetent, lose contact with the family due to overwhelming emotional stress, or lose their vision, hope and direction for further work with the family (Madsen, 2007).

Practice learning of social work students as part of the project Helping Families in the Community

Based on the distress that social workers often experience when working with families facing multiple challenges and the assumption that very little attention has been devoted to analysing social work students' practice learning (Noble, 2001), we explored how to help students work competently with families as part of the project Helping Families in the Community. FSW has recognised that practice learning is essential to working in practice. At the undergraduate level, learning outcomes are gradually increased from the first to the fourth year of study (e.g., in terms of the tasks and obligations students are expected to perform in practice, in terms of autonomy when working with users). In the first year, students 'shadow' a social worker, while in the fourth year they are expected to perform certain tasks autonomously. In the first and second years of undergraduate study, students are required to complete 100 hours of practicum. Students work with a user (or group of users) approximately once a week. In the third (240 hours) and fourth (160 hours) years of study, practice must be completed in one block. In each academic year, a student has two mentors: a field mentor and a faculty mentor. The field mentors are experienced social workers whose role is to support students in their fieldwork, teach them about field placement work and introduce them to actual work with users. The role of faculty mentors is to prepare students for fieldwork, to help them reflect on and evaluate their experiences, and to link theory and practice. At FSW, students are divided into mentoring groups (about 15 students), each led by a faculty mentor. Practice learning in the master's programme is designed to provide students with the knowledge and practice experience necessary for independent professional social work. Each student completes 80 hours of practice in their chosen practice placement (social work centres, schools, nursing homes, etc.).

It has been our experience that, while field mentors may be excellent and experienced practitioners, this does not make them good practice teachers, especially when it comes to supporting students for the reflexive application of knowledge to practice. This is the experience we want our students to have in the project Helping Families in the Community. The innovative aspect of the project was that students went from being observers of social workers who were occasionally involved in the processes of supporting and helping people, to collaborating independently with families without the presence of a field mentor. They independently carried out individual working projects of help (hereafter: IWPH), drawing on the theoretical knowledge they had acquired and looking for ways to maintain the working relationship with the family. During this process, they

received support from their faculty mentor. Student support involved a reflexive approach to applying knowledge to practice (Healy, 2005) based on reflection on theory and experience in practice. The project aimed to overcome the disconnect between theory and practice so that students apply and test theory (described in lectures) in practice, as it is often the case (Bogo, 2010) that students do not know how to apply theory learned in lectures to practice. Students and faculty mentors met regularly every 14 days in small mentoring groups (max. six students per group), explored the applicability of theoretical knowledge in practice, and actively participated in generating new knowledge. Eight mentoring groups were formed during the project, each led by a faculty mentor. Each meeting consisted of three phases: introduction (creating a context for collaboration); the core working phase (where we addressed students' experiences and the dilemmas of working with the family); and the conclusion of the meeting (summarising the agreements, personal reflection on the meeting). The way the mentoring group was managed was based on the concept of a working relationship of co-creation. This represented clear support for the work of the mentors, while also providing an experience for the students on how to structure meeting with families, as we believe that this concept is useful for supporting families (Čačinovič Vogrinčič & Mešl, 2019). At the same time, it is useful for practitioners for supervision conversations (see more in Videmšek, 2021).

As this way of practice learning proved to be effective in supporting students during the project, we continued with it after the project ended. The continuation was, however, on a smaller scale (only one or two mentoring groups per academic year), as we were unable to obtain funding in the current education system and the work of the faculty mentors was entirely voluntary, that is, in addition to their other professional commitments.

The introductory section already raised the question of the quality of field education, which is not necessarily related to quantity. Moreover, analysis of the results of three focus groups[5] with students who participated in the project Helping Families in the Community clearly showed that, although the number of hours devoted to practice learning was not increased in comparison to the hours of practice learning in the master's programme, the students felt equipped to competently perform social work with families facing multiple challenges. The results showed that:

- the students who chose this type of practice learning had an opportunity for the first time to apply social work concepts in practice completely independently and without the presence of a field mentor (although they

5 The three focus groups were conducted with students after the first year of the project. One of the aims was to explore their views on the experience of practice learning within the project.

did, of course, have a faculty mentor to help them apply these concepts in practice);

- by testing the concepts independently in practice, the students overcame the common fear of working with families and gained experience in competently conducting conversations with a family;
- the students applied all of the basic concepts of social work with a family as well as applying additional knowledge in practice, thus coming to the important realisation that theory is actually useful in practice and provides reliable support for social work with families;
- during the year-long independent work with a family, the students, with intensive support from their faculty mentors, learned how to apply knowledge in practice and how to face concrete challenges in working with a family, as well as acquiring a vocabulary to help them verbalise their work processes (Kodele & Mešl, 2015).

The above findings encouraged us to look more closely at what had happened during the practice learning that resulted in the students' experiences being so different from those in regular practice situations.

We want to emphasise that success in practice learning depends on several factors. Two research questions were posed:

1. How did students experience practice learning in small mentoring groups that focused on the reflexive use of knowledge?
2. What did the process of learning based on the reflexive use of knowledge contribute to?

Method

Population and Sampling

The population consisted of students enrolled in the master's programme Social Work with the Family in the 2014/2015, 2015/2016 and 2016/2017 academic years, and in the programme Social Work[6] (modules Psychosocial Support and Help and Social Work in Education) in the 2017/2018 and 2018/2019 academic years who had chosen to complete their practice in the manner developed in the project Helping Families in the Community. We used a non-random, convenience sample: we analysed the material from the mentoring groups that was available to us. Thus,

6 Due to a redesigned study programme, since the 2017/2018 academic year the study programme Social Work with a Family has only been run as part-time study every second year. The master's programme Social Work was redesigned into several modules. Within the framework of the module Psychosocial Support and Help, we are developing content relating to that of the programme Social Work with the Family.

the sample consisted of four mentoring groups (one group in each of the above academic years except 2017/2018), involving a total of 19 students (17 women and 2 men). All of the students had previously earned a bachelor's degree in social work.

Data Collection

We kept minutes of each mentoring group meeting in order to summarise the work process during the meeting. The minutes were taken by one student and were emailed to all of the other members of the mentoring group after the meeting. The minutes included each member's reflection on the meeting (how they experienced the meetings, what they learned for themselves and for their collaboration with families, what they missed). The students' reflections were free; students were not trained in advance how to formulate them. For the purposes of the present article, we analysed student meeting reflections from the four different mentoring groups for which the most materials were available: from the 2014/2015, 2015/2016, 2016/2017 and 2018/2019 academic years. The analysis included a total of 41 mentoring meeting minutes with 147 student reflections. The students who collaborated with the families were informed that all of the collected material could be used for research purposes and they gave their written consent.

Method of Analysis

The data obtained were analysed according to the classical method of qualitative analysis (Creswell, 2007) using the qualitative analysis programme MAXQDA. The analysis was conducted by two researchers who were also leaders of a mentoring group. Content analysis was conducted (Vaismoradi et al., 2013) using three steps involved in analytical procedures:

1. *Categorisation of the text into thematic codes.*

   The aim of the first step was to define codes based on our research questions and a predefined categorisation. Based on similarities and predefined criteria, we classified groups of concepts and themes into specific categories. This helped us to understand, simplify and reduce the complexity of the records in terms of our research objectives, and to assign specific parts of the texts to the appropriate codes. The coding process facilitated the analysis, naming, categorisation and structuring of the text. In order to do this, we first had to enter the reflections into the MAXQDA programme and then read all of the text considering the previously defined research questions. Three sets of topics were defined: group, method of participation in the group and learning process. These were further divided into subcategories and codes.

2. *Overall representation of the different codes in the text.*
   This step provided us with a basic overview of important themes discussed by the students in their reflections. The codes were assigned based on the frequency of mention of the themes throughout the text and on the number of meeting minutes in which a particular code occurs.
3. *Substantive analysis of the coded text.*
   Substantive text analysis represents a synthesis of all of the steps of the analytical procedures mentioned above. In this step, the content of the text is analysed based on the categorisation described above.

Results

As mentioned above, in our qualitative analysis of students' reflections on the meetings, we identified three main categories that emerged as the most important factors in the success of practice learning: the group, the method of participation in the group and the learning process. Below, we define these categories using different codes, followed by a content analysis.

Group

Table 1
Group

CODING SYSTEM	NO. OF CODES	NO. OF MEETING MINUTES (n = 41)
SAFE SPACE FOR COLLABORATION/WORK	31	21
WELLBEING IN THE GROUP	28	16
SUPPORT IN CONDUCTING PRACTICE/FOR WORK	23	15
IMPORTANT AND USEFUL MEETINGS	19	14
TIME FOR WORK	17	10
LOOKING FORWARD TO FUTURE MEETINGS	14	10
ENCOURAGEMENT FOR WORK	12	11
ACCEPTANCE OF COMPLIMENTS AND REFLECTIONS FROM OTHER GROUP MEMBERS	12	10
SATISFACTION	12	8
SATISFACTION WITH PAST COLLABORATION, CELEBRATION OF ACHIEVEMENTS	8	4
SATISFACTION WITH THE GROUP AND THE MENTOR	7	4
ENTHUSIASM ABOUT OTHER MEMBERS' WORK	11	9
EMPOWERMENT OF GROUP MEMBERS, BETTER EQUIPPED FOR WORK	11	9
WORK IN A SMALL GROUP	10	6
CARE FOR OTHER GROUP MEMBERS	7	6
NEED FOR REGULAR MENTORING MEETINGS	7	5
PROGRESS IN THE GROUP'S WORK	6	5
GROUP CONNECTEDNESS	5	5

The analysis of the results shows that most of the students perceived the mentoring group as *a safe space for collaboration and work*. They understood a safe space for collaboration and work as a space where they could voice their opinions and questions, as well as dilemmas that arose during collaboration with families, without feeling fear or shame.

Feeling safe within the group allowed members to feel *comfortable and relaxed at meetings* and contributed to positive group dynamics among members. The students described the meetings as *important and useful*, primarily because they received *support in carrying out their collaboration with the family*.

I had a very challenging meeting during practice that I didn't handle well, so I needed a lot of support. (1.R2.S3)[7]

The students liked the fact that they could take *time for work* during the meetings, i.e., each member was able to report in detail about his or her collaboration with a family, and also that the leaders of the meetings adjusted the time for group work to the needs of the individual group member. They had ample time to work during the meetings, which was clearly facilitated by the fact that the work was organised in *a small group* (maximum six students), which some students described as an important factor in the success of the practice learning.

The students were generally *satisfied with the meetings* and frequently described their satisfaction with various superlatives (e.g., great, cool, I really enjoyed it, I'm really satisfied to be part of such a group). They frequently related their satisfaction to how satisfied they were with their previous collaboration in the group, with the group as such, and with the mentor's work. The satisfaction with the meetings was associated with the fact that the students *looked forward to future meetings*. When the students reported working with families, they often expressed *enthusiasm* about how other group members had overcome the challenges of working with families. The students who reported working with families *acknowledged the compliments and reflections on their collaboration* that they had received from other group members during meetings. In this way, they received either *validation* for their good work or *encouragement* for their continued collaboration with families.

The students were also satisfied with the implementation of the meetings because the meetings helped them to *feel more empowered and better equipped to work with a family*. They also learned *how to take care of each other in the group*.

7 Student reflections were coded so that we first noted the year of mentoring group introduction (1 for first year; 2 for second year, etc.), then added the serial number of the record (Record 1 - R1) and the serial number of the student (Student 1 - S1).

I'm glad that B. had the opportunity to analyse her work with the new family because this family needed help in several areas and B. had a difficult task. Since she has just started working with this family, I think it's necessary for us to give her more support. (2.R14.S7)

From one meeting to another, the students recognised the need for *regular meetings*, recognised *progress in the group's work*, and felt *more connected to group members*.

Method of collaboration in the group

Table 2

Method of collaboration in the group

CODING SYSTEM	NO. OF CODES	NO. OF MEETING MINUTES (n = 41)
CONCRETE SUPPORT FOR COLLABORATION/WAY OF ACTION	19	14
COLLABORATIVE SEARCHING FOR SOLUTIONS	11	9
MUTUAL HELP	10	9
CONVERSATION ABOUT PROBLEMS	8	7
WORK ON PERSONAL THEMES	7	5
ESTABLISHMENT OF A WORK RELATIONSHIP	1	1
REVIEW EFFICACY OF JOINTLY FORMULATED SOLUTIONS AT THE MEETING	1	1
FLEXIBLE SCHEDULING OF MEETINGS	1	1

The students cited receiving *concrete support for their actions and/or collaboration with family* as the main factor in their satisfaction with the method of working at meetings.

Today's meeting was enormously helpful for me. Through all the support and suggestions (the most useful one was that I should only consider what is happening in the current meeting, what is happening today, at this moment, here, what is current) I got new momentum and went to my meeting with the family full of curiosity. (4.R9.S18)

They liked the *collaborative search for solutions* to the challenges they had encountered while working with families, as well as the *mutual help* among group members.

As a space where students have *the opportunity to talk about the problems they face when working with families*, the meetings were also considered a source of satisfaction with the working method. As a 'source of satisfaction with the method of work at the meetings', some students also indicated that the

meetings allowed them *to work on personal themes* (they received support in solving their personal themes, which were often seen as obstacles when working with families).

The previous meeting was 'food for thought', even after the meeting – especially regarding the strong emotions we develop in our work with users. I'm personally very touched by the situation of the family. I'm grateful I can share this at meetings. (2.R7.S11)

Regarding the group collaboration method, some students pointed out certain other aspects, such as the importance of group collaboration in the form of *a co-creative working relationship*, *the constant review of the effectiveness of the jointly developed solutions at the meetings* and *the flexibility in scheduling the meetings*.

Learning Process

Table 3
The learning process

CODING SYSTEM	NO. OF CODES	NO. OF MEETING MINUTES (n = 41)
LEARNING FROM SHARING EXPERIENCES	43	29
NEW KNOWLEDGE, WORK GUIDELINES	25	15
NEW (DIFFERENT) VIEW OF THE SITUATION	24	17
EXPERT GROWTH	16	15
INSIGHT INTO OTHER WORK PROCESSES	16	12
VALUABLE LEARNING SITUATION	15	13
PERSONAL GROWTH	8	8
OPENING UP OF WORKING TOPICS	5	3
BEGINNERS ANXIETY	5	3

Analysis of the results showed that the students learned the most during the meetings by *sharing their experiences working with families*.

When we share experiences and different views, I build up a wealth of knowledge and get the feeling that I'm not alone in this, and that important people are there for me to count on when I find myself in a dilemma or a difficult situation related to social work with a family. (4.R6.S19)

A conversation about the process of working with families in the group provided students with *new knowledge about how to proceed and/or guidelines for further work with the family* and often provided *a different (new) perspective on the experience of working together*.

When the students shared their story of working with a family with others in the group and gained *insight into the processes of other members' work with families*, it was *a valuable learning situation for all group members*.

I gained many useful insights. I liked it when the leader pointed out the use of the word 'sincere', because it was only during the mentoring meeting that I could imagine how this word would sound. (2.R3.S10)

The mentor meetings also provided opportunities for students to *develop professionally and personally*.

All this information, members' ways of thinking and ideas for possible solutions give me strength in learning for professional work and for life. I receive constant confirmations that I've chosen the right practice. (4.R7.S20)

At the meetings, the students identified *work topics* that would be useful when working with families. The meetings were particularly valuable to them at the beginning of their work with families because *the students were often anxious because they did not know how to make initial contact with the family*. The support of the faculty mentor was particularly valuable to them in these cases.

Discussion

The world is changing rapidly; social problems are constantly being redefined and have become fluid entities (Chow et al., 2011). Consequently, social work education cannot prepare social work students in detail for work in practice. The findings presented in the present article indicate that the reflexive approach used in small mentoring groups helped students to integrate theoretical knowledge and practice as future social workers. Faculty mentors encouraged students to consistently reflect on and apply various theoretical knowledge about working with families facing multiple challenges. By helping each other, working together to find solutions to problems, and sharing experiences from their work with families, group members were able to reflect on their own actions in practice. It is reflection on their own actions that enables the creation of new knowledge and new meanings (Schön, 1991). In this way, students gained important new knowledge for their work with families.

However, a reflexive approach as such does not guarantee that students will be effectively supported in their practical work. Other factors also contribute. Analysis of the results indicated that if we want 'reflexive dialogue' to be effective in the group, a culture of collaboration must first permeate the group to allow and encourage participation by each group member in a way that makes them feel safe. In addition, students who reported working with families viewed comments from other group members as important support that strengthened

their resources. They also found it valuable to hear reflections on their work with families from the perspective of other group members. Similarly, Toseland and Rivas (2014) include among the fundamental values of group social work participation and positive relationships between group members, collaboration and mutual responsibility for decisions, the importance of individual initiative in the group and free participation, and a high degree of individualisation within the group. Among the fundamental factors that influence the success or effectiveness of practice training, Bogo (2015) cited a positive learning environment, along with cooperative and supportive mentor-student relationships and the importance of reflexive dialogue.

It was possible to realise the above values and factors in the mentoring groups, in part because of the group size (six students maximum), which enabled students to take time to resolve dilemmas and questions about the challenges they encountered in their practice. Faculty mentors had support (both time and financial support for regular meetings every two weeks) that enabled them to effectively support students in their practice work. However, such support cannot be taken for granted. In our case, the support ceased at the end of the project, after which we depended on volunteerism and the willingness of faculty staff to continue to provide support to students. A 2014 Council on Social Work Education report on practice education notes that, in order to support students' practice, it is first necessary to provide them with sufficient time and financial support. Accordingly, students receive ongoing support in the form of guidance, timely support and monitoring of the progress of their work (Council on Social Work Education CSWE, 2015). This was also found to be important in our research.

An important finding of the present research is that the ongoing and concrete support provided by the mentoring group to students engaged in practice enabled them to cope with the sense of uncertainty that is common in collaborative processes (Čačinovič Vogrinčič & Mešl, 2019; Kodele & Mešl, 2016). In a co-creative working relationship, there are usually no ready-made answers to solutions, and the role of social workers is often to transform despair into hope, which requires them to insist on IWPH. However, to insist on a co-creative working relationship, students needed support to either justify their insistence or to receive reassurance that they were doing well, when changes were small and slow. This is supported by the findings of many authors (Kourgiantakis et al., 2018; Maidment, 2000; Saltzburg et al., 2010;) that mentors can provide students with the support they need in social work practice by guiding their thinking, discussing with them their interactions with families and family members, and providing ongoing positive and constructive feedback to facilitate self-reflection on their own behaviour. The feedback was given

to the students at each meeting, and it certainly impacted the development of the students' social work skills (better understanding of the complexity of family lifeworld, the theory used, etc.). The feedback students receive from their mentors helps them reflect on their practice, connect theory to practice and build their confidence (Bogo, 2015). Thus, if learning in a mentoring group is to contribute to successful learning in practice, it must be framed as a reflexive dialogue between mentor and student. Such dialogue is possible in a small group with a maximum of six students. Ongoing and concrete support for social work practice and professional development is needed and must be underpinned by joint exploration of possibilities for action in specific situations that arise when working with families. In another context, this type of support for students in their practice learning may seem self-evident, but it is not (yet) common in the Slovenian education system. This system is based on triangulation of resources (student, faculty mentor, field mentor), which is good and important. The problem is that field mentors often do not support students in the reflexive use of knowledge. A future challenge for the faculty is to encourage field mentors to provide students with ongoing reflection on theoretical knowledge in practice. One way to address this challenge is to provide mentors the experience of reflexive dialogue and lead mentoring groups together: both the faculty mentor and the field mentor. Field mentors can spread their new experience and knowledge further with their colleagues, etc. The integration of theory and practice is still a blind spot in our practice learning, which focuses more on representing how social work is done in practice, unfortunately still all too often with the message that theory and practice are two different things. We see the student support for the practice learning that we have developed as part of this project as a good starting point for students who have experienced such support to put it into practice when they become field mentors.

Research limitations

The circumstances of the data collection and analysis of the material that might have affected the final results are as follows:

- At the start of our collaboration with the students, we did not specifically define the scope of what should be included in the reflections at a meeting. On the one hand, the students had more freedom in expressing their views, as they were able to write what they had truly grasped from the meeting. On the other hand, the records of some of the students were quite modest or tautological (e.g., Everything was O.K., Super, etc.). In the future, it would therefore be reasonable to consider how to present information to students about the intended scope of reflections

on a meeting in a manner that still allows freedom of personal expression. It would also make sense to think about how to support students to reflect on how their personal themes (e.g., gender, family of origin, cultural background, socioeconomic status, religious and other beliefs, etc.) influence their epistemological assumptions that affect how they perceive, feel, evaluate and act when interacting with families facing multiple challenges (see also Fook and Gardner).

- The students' reflections were also related to the amount of time elapsed before writing the reflection: if a lot of time had passed since the meeting, students found it more difficult to formulate their experience.
- The students' reflections were analysed by two researchers who had also participated in leading the mentoring meetings. This might be an advantage in the sense of knowing the context and understanding the work processes, but it could also represent a research limitation. Despite our systematic analysis with predefined steps aimed at ensuring a rigorous analysis and relevant results, the fact that the analysis was conducted by two researchers with experience in leading mentoring groups could have influenced the results.

Conclusion

The purpose of our research was to identify key factors that influence the quality of practical education for students working with families facing multiple challenges. The outlined results show that the presented method of support, as developed in the project, enables students to work competently in practice. We need to be clear that a degree does not necessarily mean full competence to work in practice. Supporting reflexive dialogue about practice experiences and the application of acquired knowledge is also what social workers who are already in the profession need.

It is quite common for social workers to quickly lose or forget what they learned in their studies as soon as they enter the work environment. This is because the institutional context largely determines their actions (Clapton et al., 2006; Mešl, 2008) and their knowledge of social work takes a back seat. Moreover, social work is a profession and science in which it cannot be said that the development is complete, that we have arrived at definitive theories and methods, or that we have created a body of knowledge with which to work henceforth. What is true of social work knowledge today may change tomorrow, as may the society in which we live and the needs of the people with whom we work (Jivanjee et al., 2015; Kodele & Mešl, 2015; Lam et al., 2006; Marquez, 2016). Indeed, social work

operates in the field of people with complex psychosocial problems, so knowledge should be constantly evolving and new responses to people's real everyday challenges should be developed together. For this reason, social workers need to constantly reflect on their own practice and develop new knowledge. This can be a good starting point for social workers as field mentors to be able to provide students experience of practice learning based on reflexive dialogue.

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Frequent Limits and Advantages of Conditions for Geology Education: Example of Czech and Slovak State Curricula

Tereza Jedličková*[1], Andrea Svobodová[2] and Václav Kachlík[2]

Geology is a subject of low interest for many pupils and teachers. The present study aims at examining the organizational conditions for geology education using the model of the Czech Republic and Slovakia, drawing from the national curricula. The study discusses the possible reasons for the unpopularity of the field worldwide and proposes general recommendations that would contribute to increasing interest in geoscience. The main drawbacks of geology education seem to be the large volume of required knowledge, its thematic structure, and a lack of links to real life. The Czech curriculum is vaguely and theoretically defined, placing demand on pupils, especially in the area of memorizing given information and practically pays no attention to recommended teaching methods. In contrast, the Slovak curriculum better reflects current trends. In general, it is necessary to implement continuous educational support for geology teachers and restructure the geology syllabus so that individual sub-fields are interlinked. Moreover, the learning outcome definition should include action-based education, fieldwork, experimenting, and similar elements.

Keywords: content analysis, ISCED 2, geology education, geology syllabus, national curriculum

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Pogoste omejitve in prednosti pogojev za izobraževanje o geologiji: primer češkega in slovaškega nacionalnega učnega načrta

Tereza Jedličková, Andrea Svobodová in Václav Kachlík

Geologija je področje, za katero ima veliko učencev in učiteljev nizko raven zanimanja. Namen te študije je preučiti organizacijske pogoje za izobraževanje o geologiji na primeru Češke in Slovaške, pri čemer se sklicujemo na nacionalne učne načrte obeh držav. Študija obravnava mogoče razloge za nepriljubljenost tega področja v svetu in predlaga splošna priporočila, ki bi prispevala k povečanju zanimanja za geoznanost. Zdi se, da so glavne pomanjkljivosti izobraževanja o geologiji velika količina zahtevanega znanja, njegova tematska struktura in pomanjkanje povezav z resničnim življenjem. Češki učni načrt je ohlapno in teoretično opredeljen; pred učence postavlja veliko zahtev, zlasti na področju pomnjenja podanih informacij, in dejansko ne posveča pozornosti priporočenim učnim metodam. Nasprotno pa slovaški učni načrt bolje odraža trenutne smernice. Na splošno bi bilo treba izvajati stalno izobraževalno podporo učiteljem geologije in prestrukturirati učni načrt za geologijo, tako da bi bila posamezna podpodročja med seboj povezana. Poleg tega bi morala opredelitev učnih izidov vključevati izobraževanje skozi gibanje, terensko delo, eksperimentiranje in podobne oblike izobraževanja.

Ključne besede: vsebinska analiza, ISCED-2, izobraževanje o geologiji, učni načrt za geologijo, nacionalni učni načrt

Introduction

As an elementary natural science, geology represents a genuine link between other natural sciences, such as biology, geography, chemistry, and physics. It has the largest base of elementary and applied scientific disciplines (Pyle, 2008). The importance of geology education does not lie merely in acquiring knowledge of minerals, the Earth's history, the evolution of life, and practical disciplines. Currently, its rising value is concentrated in an interdisciplinary and integrated study of global exo- and endogenous processes that help to better understand the large natural catastrophes (e.g., earthquakes, tsunamis, volcano eruptions, landslides) as well as relatively slow transformation (e.g., in the climate, the related sea-level changes, or desertification). Researchers and teaching experts realise the importance of comprehending phenomena and interactions between human beings and inanimate nature; therefore, the terms 'Earth Science' or 'Geoscience Literacy' were introduced (Wysession et al., 2009). These terms capture the relationship of human beings to inanimate nature influenced by understanding the basic concepts of Earth's complex systems, the ability to find and assess information, and to communicate meaningfully about inanimate nature (Wysession et al., 2009). The National Geographic Company introduced a similar term: 'Geo-Literacy'. It focuses on a complex understanding of geology knowledge, as well as geography and local history. These aspects enable society to protect national and cultural resources and the quality of life efficiently (Edelson, 2014).

Geology education is similar across Europe. The field is rarely taught as a separate subject at the secondary level. The geological contents are most commonly included in the subjects of geography, natural sciences and biology (Brajković et al., 2018; Kácovský et al., 2021). Geology tends to be disliked as a field (e.g., Fermeli et al., 2011; Lewis, 2008). Stereotypically, it is viewed as less rigorous than biology, chemistry, or physics. This enhances misconceptions about the width, depth, and necessity of geology education (Lewis & Baker, 2010). Undoubtedly, other natural science disciplines also face low interest from pupils. However, no other field requires such demanding training of teachers, laborious class preparation, and well-conceived teaching as geology (e.g., Zamalloa & Sanz, 2020). One rarely hears arguments for removing biology or chemistry from the secondary-school curriculum (Ridky, 2002). However, between 1983 and 2009, the Czech and Slovak educational systems at grammar schools contained no obligatory geology classes, for example (Turanová, 2000). Global underestimation of the importance of the whole geoscience field, along with insufficient pupil preparation, leads to an inevitable drop in the number

of students enrolled in study programmes focused on geoscience (Meléndez et al. 2006, 2007).

Despite the above-mentioned facts, the topic of geology education has paradoxically not gained much popularity in educational periodicals. Few research papers published in regular science education periodicals deal with geology compared to other scientific fields (e.g., Zmalloa et al., 2020). Dealing with the role of geology in the curricular documents that shape the form of education is necessary. Moreover, according to the main findings of the research of Pešková et al. (2019), who focused on teachers' acceptance of curriculum reform in the Czech Republic, education also faces another difficult situation. Teachers who focus on the development of learners' abilities or subject knowledge tend to be more reluctant to accept reforms. Subject matter-centred teachers may be afraid of a decline in learners' knowledge, whereas learner-centred teachers may be concerned about formalism and decreasing autonomy.

Therefore, in the context of the unstable position of geology, this study finds it necessary to focus on the content of the curricula, as well as on the conditions for classes arising from the documents, meaning the formal conditions of an organisational character. Furthermore, recommended teaching methods, pupils' acquired knowledge and skill requirements and the overall approach to pupils and their education should be addressed.

The study primarily aims at examining the conditions for geology education arising from the national curriculum for the ISCED 2 level, using the model of the Czech Republic (hereafter: Czechia) and the Slovak Republic (hereafter: Slovakia), pointing out the possible reasons leading to the unpopular position of the field. These two countries differ from the rest of Europe in geology education: the content of geology is placed within biology and is called 'Inanimate nature' in the curriculum. Moreover, the educational systems of both countries have similar historical contexts. Czechia and Slovakia had exactly the same chance to change their curriculum at the same period. For these reasons, the comparison of both states is more transparent. Although the analysis is performed on only two examples of the curriculum, other comparative studies with a similar focus, but different states, are taken into account (e.g., Jedličková et al., 2019; Kácovský et al., 2021). The study discusses the possible causes of the negative perception of geology arising from the conception of the curriculum and brings general proposals to eliminate them and to increase interest in the field among pupils.

Research Questions

Combining our research goals with the theoretical background, we formulated the following research questions:

- What is the current position of geology in curricular documents in Czechia and Slovakia?
- In what ways and to what extent do the Czech and Slovak curricula present the educational content of geology?
- Do curricular documents in Czechia and Slovakia recommend specific teaching methods suitable for geology classes?

Historical context of teaching Geology in Czechia and Slovakia

The historical context of the Czech and Slovak education systems draws from the principles of Marie Theresa's schooling reform in the 18th century. Natural sciences, including geological sciences, entered the curriculum to a larger extent in 1773, according to Kočárek (1978). Mineralogy, mainly crystallography and the mineralogical system dominated the geoscience curriculum until the end of the 18th century. Petrography also marginally affected the content. Geological processes constituted a part of physical geography classes at that time. The beginning of the 19th century saw the rising significance of geology within education, although mineralogy retained its dominant position. Secondary school teachers took a state exam at universities solely for mineralogy until 1921 (Turanová, 2000).

Czechoslovakia was established in 1918, and it accepted the Austrian educational organisation with no major changes. The schooling reform of 1932/1933 rearranged curricula and joined them into comprehensive complexes. National schools taught mineralogy as part of the subject Natural Sciences (equivalent to Biology at ISCED 2 level) in the sixth year. The seventh year continued with significant sedimentary and metamorphic rocks, followed by substantial igneous rocks in the eighth year. Geological knowledge represented a part of the subject of Geography (Turanová, 2000).

The educational system of the restored Czechoslovak Republic after the Second World War fell under the influence of the Soviet educational model. The educational system between 1945 and 1948 used curricula and textbooks from the 1930s. The geological curriculum remained a part of the subject of Natural Sciences. Geological sciences recorded the first attempts to teach actively with clear demonstrations. Turanová (2000) marks this era as the period of a dynamic approach.

After 1948 and the passing of the Act on Unified Schooling, primary schools taught geology within Natural sciences in the complete scope. It included the most frequent minerals and rocks, an overview of historical geology, and an introduction to dynamic geology. However, 1953 brought radical changes in curricula. It led to a significant reduction of geosciences and fragmentation of geological topics to several subjects: Physical Geography, Chemistry, and Biology (Turanová, 2000). The curriculum had a descriptive character. Links among geological phenomena remained unnoticed, and the knowledge of most pupils was minimal. The content of geosciences as a whole re-entered the curriculum of Natural Sciences in 1963/64. The compulsory school attendance was extended to nine years at the time. Classes stressed dynamics, polytechnical education, and lab work. Mineralogical excursions were organised to a much larger extent.

The changes in curricula in 1984 became a critical moment in the current history of geology teaching. Obligatory classes on the subject at the higher secondary school level were cancelled. Since then, geology was taught as an optional subject spanning two years. Its content was rich, containing planetary geology, mineralogy, and petrology, as well as general, historical, and regional geology or environment protection and formation. Nevertheless, it was practically not taught at grammar schools (Turanová, 2000).

The revolution in 1989 brought crucial political changes. However, geology education saw no major modifications. Curricula were slightly adjusted, but teaching methods largely remained. Czechoslovakia was divided in 1993. Both new countries committed to reforming their curricula and creating them on their own. Detailed information on the course of curricular reform is provided, for example, by Pešková et al. (2019, p. 77) or Hřivnová (2021, p. 85).

Actual changes came after more than two decades. The Czech and Slovak primary and lower secondary systems are mostly single-structured and called 'elementary education'. Both countries use a two-level curriculum structure: the state and school levels. The state level introduces a nationwide framework document. It defines the educational concept, goals, and basic content of education with general conditions for its implementation. The school document provides the framework for the implementation of education at specific schools. It is defined by individual schools in line with the nationwide framework document. The Czech national curriculum was introduced in 2006. It largely influenced the first version of the Slovak curriculum that came out in 2008. The Slovak curriculum later underwent major changes, and the so-called Innovated State Curriculum was introduced in 2015. The two mentioned national curricula returned geology among obligatory subjects at both levels of secondary education (MŠMT, 2017, 2021; ŠPÚ, 2009, 2015).

History shows that geology education in Czechia and Slovakia never had a fundamental status. Constant changes in the curriculum and the ambiguous relation of the geosciences to other natural sciences led to underestimating the importance of the geosciences and pupils' insufficient education. The unfavourable state plays a crucial role in the low interest in the field of both students and teachers. The reduction of geology classes at the higher secondary school level caused the interruption of the practice of qualified geology teachers, among other things. The dissolution of Czechoslovakia gave both countries the opportunity to change the mentioned unfavourable conditions of geology education through curriculum reforms. They could enhance the position of geosciences, suitably modify the content of education, and influence the perception of geosciences.

Method

This study primarily focused on the analysis of the structure and content of Czech and Slovak curricular documents (hereafter: CZC and SKC, respectively) concerning geology (the inclusion of geological content, the scope of the subject matter, recommended teaching methods, etc.). Its goal was to perform an extensive analysis and subsequent comparison of selected curricular documents for lower secondary education, ISCED 2 level, according to which the current educational system is implemented. The Framework for Educational Programme for Basic Education (MŠMT, 2021) represented the basic set for content analysis in Czechia. The New State Educational Programme for the First Stage of the Primary School (ŠPÚ, 2015) represented the basic set for Slovakia. Older versions of CZC and SKC were also examined (MŠMT, 2017; ŠPÚ, 2009).

Content analysis was employed for comparing the above-mentioned curricular documents. The selection of the required concepts (learning outcomes, subject matter, time allocation, thematic scope etc.) resulted from the research of individual documents emphasising the teaching and manner of inclusion of geology content in the relevant country. When analysing obligatory learning outcomes, a deductive approach framed by the Revised Bloom's Taxonomy (RBT) was applied to classify their requirements (Anderson et al., 2001). The RBT consists of two dimensions: cognitive processes (six levels labelled Remember, Understand, Apply, Analyse, Evaluate, and Create); and types of knowledge (Factual, Conceptual, Procedural and Metacognitive). Thus, each learning outcome can be evaluated from two views: the cognitive process required (expressed by a verb) and the type of knowledge developed (expressed by a noun). The original paper by Anderson et al. (2001) provides

theoretical background and concrete examples of how to use the taxonomy in research. According to Kácovský et al. (2021), the learning outcomes were analysed during the multilevel coding process using RBT, and the specific cognitive processes for metacognitive learning outcomes were not specified. The educational content of geology was examined in several main topics: the Earth's formation and structure, mineralogy and petrology, endogenous and exogenous geological processes, development of the Earth's crust, evolution, environment formation and protection. Further, the organisational aspect of teaching, specifically the inclusion of geological subject matter, the range of geology content in elementary schools, and recommended teaching methods and equipment, were monitored and compared.

Unlike SKC, CZC does not tie the sequencing of educational content to a particular year of study. Therefore, an online poll was conducted to examine the current state of geology education at the ISCED 2 level in Czechia. The whole questionnaire focused on the current situation of teaching geology in the nation; questions were asked about the experience and opinions of geology teachers, for example, pupils' attitude to geology, the extent of CZC, or the quality of available teaching materials. Because the poll was not carried out in Slovakia, a comparison of these questions is impossible for now. This study presents only the data related to the organisational structure of geology teaching in Czechia (time allocation, year of study, inclusion of geology etc.) in order to compare the current situation with Slovakia and SKC, respectively. A total of 342 completed questionnaires were acquired, and 304 respondents/teachers were included in the survey as they answered that they were taught geology.

The content analysis of CZC and SKC, supplemented by the opinions of Czech teachers, led to the evaluation of the geology education strategies in Czechia and Slovakia. Subsequently, general recommendations were formulated that should increase the interest in geology. The study draws on previously published results by Jedličková et al. (2019).

Results

The current position of geology within CZC and SKC

To address our first research question, we researched CZC and SKC with a focus on the occurrence of geological topics within both documents (i.e., the inclusion of geological topics within concrete educational areas or school subjects, time allocation, and cross-curricular relationships). Czech and Slovak education systems have corresponding organisational conditions for the allocation of geology. Lower secondary CZC and SKC (ISCED 2 level) similarly

place geology education in the area of Humans and Nature, namely the subject of Biology and the educational field of Inanimate Nature. Other subjects in this educational area (e.g., Geography, Chemistry, Physics) also marginally touch geological topics (specifically the Earth's formation, mineralogy, and internal geological processes).

The sequencing of educational content in SKC is strictly tied to a particular year of study. Schools and teachers have no choice in this respect. In the SKC, the educational field of Inanimate Nature belongs to Biology in the 9th year of elementary school with one class per week. It is followed in the same school year by the educational field of Ecology (e.g., ecosystems, biotopes, community, species diversity, ecological balance etc.).

The CZC places the educational field of Inanimate Nature at the end of Biology, also followed by the educational field of Ecology. In line with the Czech educational system, the CZC only defines the content and allows schools to flexibly move the subject matter among school subjects or create new subjects. However, schools rarely use this opportunity. The survey showed that geology in Czechia is mostly taught in Biology classes (253 respondents, i.e., 83%). Only 9 respondents (2.9%) teach geology as a separate subject. In 22 cases (7.2%), geological topics are taught in the subject of Geography; 12 respondents (3.9%) indicated a combination of Biology and Geography. Other answers did not reach 1%; they included, for example, chemistry, science seminars, and project teaching. A total of 263 respondents (i.e., 86.5%) confirm that some geological topics are also taught in other subjects, mostly Geography. According to the survey, Czech elementary schools typically teach geology in the 9th year. A total of 285 teachers (93.7%) also stated that within the same year, the school curriculum includes other educational fields in addition to Inanimate Nature (most commonly Essentials of Ecology; 214, i.e., 70%). Five of the nine respondents who teach geology as a separate subject also mentioned the teaching of environmental science and ecology within the same year of study.

The personal opinions of the respondents on how they think geology is most appropriately taught are shown in Table 1. Most respondents are inclined to include the content of geology in the subject of Biology. From the individual answers, the most common opinion was to divide the teaching of geology between Biology and Geography.

Table 1

The personal opinions of the respondents (i.e., Czech teachers) on how they think geology is most appropriately taught. The respondents had the option to choose from a list of answers or state their individual answers.

Implementation of geology	Number of answers
In connection with Biology	130 (42.76 %)
In connection with Geography	57 (18.75 %)
As a separate subject of Geology	47 (15.46 %)
Combining geological content into a new subject (e.g., Earth Sciences)	40 (13.16 %)
Individual answers	30 (9.86 %)

The extent of the content of geology in CZC and SKC

The educational content of specific educational areas, including geology, comprises the learning outcomes and subject matter (both in CZC and SKC). The learning outcomes in CZC are called expected outcomes, while SKC defines performance standards. Both determine the criteria of the level of mastering the pupils' knowledge, skills, and abilities. The subject matter in CZC and the content-based standards in SKC determine the volume of required knowledge and skills and form an integral part of the educational content. To address the second research question, we compared the range of geological subject matter and the number of obligatory learning outcomes between the two countries under study. Also, the formulation of learning outcomes was considered with a focus on the demands on pupils.

The range of geological subject matter in CZC and SKC is largely identical. Both cover major topics in the educational field of Inanimate Nature. Specifically, they include the Earth's formation and structure, mineralogy and petrology, endogenous and exogenous geological processes, development of the Earth's crust, evolution, environment formation and protection. All the content belongs entirely to one educational field and one subject. A disproportion arises between CZC and SKC in the number of learning outcomes related to the field of Inanimate Nature: 3 vs 21, respectively.

Table 2 demonstrates clear differences between CZC and SKC in the specification of the educational content of the field of Inanimate nature. Endogenous and exogenous geological processes were selected as a model topic of the field of Inanimate nature. The subject is dynamic and considered popular with students and teachers (Dvořáčková et al., 2018). CZC defines the whole topic bluntly as 'causes and effects'. The SKC content standard, in contrast, elaborates in detail on what processes fall within the topic and specifies them. Even the topic of 'energy

sources of geological processes' is included, for example. A look at the expected outcomes shows a similar situation. CZC dedicates a single learning outcome to the whole of endo- and exogenous geology. Moreover, it only focuses on the consequences of geological phenomena and avoids the core of the issue. The list of learning outcomes of the topic in SKC names four points. The outcomes are more specific, requiring individual activity, for example, proposing a project and documenting processes and their effects. The outcomes work with the notion that the processes take place in the immediate surroundings of pupils.

The distribution of learning outcomes based on RBT to show the different demands of learning outcomes on pupils within CZC and SKC is presented in Table 3. Due to a low number of learning outcomes related to geology in CZC, it is almost impossible to compare it with the level of the type of knowledge required by SKC. Regardless, neither curriculum defines any learning outcomes requiring factual knowledge. Conceptual and procedural knowledge are required to the same extent within the SKC.

Table 2

The differences in the education content definitions between the CZC and SKC modelled on the topic of 'exogenous and endogenous geological processes part of the subject field Inanimate nature.

		Subject matter	Learning outcomes
ENDOGENOUS AND EXOGENOUS GEOLOGY	CZECH CURRICULUM (CZC)	- External and internal geological processes – causes and consequences	*The pupil is able to:* distinguish between the consequences of endogenic and exogenic geological processes, including the geological rock and water cycles
	SLOVAK CURRICULUM (SKC)	- Geological processes internal, external - Energy sources of geological processes - Igneous and volcanic activity, earthquakes, rock transformation - Mechanical and chemical weathering - Geological factors, disruptive and creative activity - Disruption, transfer, settling, consolidation - Karst, surface, and underground karst formations	*The pupil is able to:* - justify the influence of geological processes on the shapes of the Earth's surface, on the life of organisms, - document catastrophic geological processes in the world and in Slovakia and their consequences, - design a project to learn about the attractions of inanimate nature in Slovakia, - explain the origin and occurrence of karst and karst formations.

Note. Adapted from MŠMT, 2021; ŠPÚ, 2015.

Table 3

Number of learning outcomes of CZC and SKC requiring the corresponding combination of type of knowledge (Factual, Conceptual, Procedural and Metacognitive) and cognitive process (Remember, Understand, Apply, Analyse, Evaluate and Create), based on Revised Bloom Taxonomy (RBT) (Anderson et al., 2001). As one learning outcome of CZC contains two different active verbs, it was evaluated using RBT twice (although the total amount of learning outcomes is 3).

CZECH CURRICULUM (CZC)					SLOVAK CURRICULUM (SKC)				
	F	C	P	M		F	C	P	M
remember					remember				
understand		1	1		understand		4	1	
apply				1	apply			3	3
analyse		1			analyse		2		
evaluate					evaluate		2	1	
create					create		1	4	

Teaching methods suitable for geology classes recommended in CZC and SKC

In this section, we describe the results of the content analysis used to address the third research question. SKC defines recommended teaching methods in the educational area of Humans and Nature. It lists practical and research activities, observation, and mainly interdisciplinarity. SKC determines educational strategies even at the level of biology as a subject. The formulations of individual performance standards reflect them. It is mainly based on constructivism and the idea that pupils actively construct or make their own knowledge and that reality is determined by their experiences. The teacher is only a kind of mentor in the whole educational process. The learning outcomes of the field of Inanimate nature require practical education, observation, experiments, field trips, working with information, and similar elements.

CZC defines recommended teaching methods only generally in the characteristics of the whole area of Humans and Nature. It generally outlines a brief demand for developing critical thinking and using research methods in classes. Pupils should learn experimenting skills in their study of all subjects of natural sciences. The need for proper work with information is merely implied. CZC does not recommend any teaching methods at the level of subjects, educational fields or learning outcomes.

As digital competence is one of the seven Key Competences for Lifelong Learning defined by the European Parliament and the Council (2006), we also researched whether the learning outcomes promote the use of ICT among teachers and pupils. We found that in both CZC and SKC, no mention is made of the role of ICT in natural science subjects.

Discussion

Problems in teaching geological topics at the secondary and tertiary levels arise worldwide. Universities produce fewer expert geologists, and secondary education lacks qualified teachers. Students show little acceptance towards the field in the long term (Lewis & Baker, 2010). The lack of interest may realistically bring negative consequences to society (Arthurs, 2019). To understand the persistent issues of geology, new questions must be asked, and the whole area must be examined from various perspectives. What should science teachers know about the Earth? What represents a sufficient conceptual and educational framework for geology education? How should the national curriculum implement geology education? What support do current teachers need?

The presented research analyses two examples of the curriculum documents (CZC and SKC) with respect to geology at the ISCED 2 level, identifying the possible key factors modulating the general attitudes towards geoscience. Geology deserves attention in the extent and content of the curriculum, didactical aspects, teaching forms, and interdisciplinary links to other natural sciences. Understanding these factors could assist the effort to reverse the current situation and to elaborate educational practices that highlight the values of the geosciences among pupils, students, and teachers.

The position of geology among other science disciplines

The multidisciplinary character of natural sciences is mentioned, especially with regard to the emergence of boundary disciplines (e.g., Wake, 2000), but the integrated education of natural sciences remains rare in Europe (Eurydice, 2011). Also, geology as a boundary discipline faces the ever-present question of the integration level. If geology cannot be taught fully integrated into a complex subject of geoscience, the merger of geology and physical geography should be considered, as is the case in most European countries (Fermeli et al., 2011; Jedličková et al., 2019). Physical geography usually describes and explains basically the Earth's shapes that arise from endogenous or exogenous geological processes and links them with the environment, human influence on the environment, renewable and non-renewable natural resources, agriculture, spatial planning, and other disciplines.

According to Adetunji et al. (2018), geosciences face a more difficult challenge than other science disciplines due to students' scant exposure to geosciences in their early educational period. The absence of a complex concept of geoscience teaching and the inclusion of geology in other subjects causes the *de facto* subordination of geology. Sections of geology are often ignored or explained superficially (Brajković et al., 2018; Meléndez et al., 2007). The decreasing volume of geological content in comparison to other subjects and its reduction in the secondary school curriculum and at universities is causing serious concerns among the geological community (Arthurs, 2019; Meléndez, 2006, 2007).

The historical context of geology education in Czechia and Slovakia demonstrates that the position of geosciences has never been sufficiently strong. Practically any educational revision resulted in a content exclusion of geology, and the inferior role of geology remains apparent. Integrating geology into biology in Czechia and Slovakia emerges from a tradition attempting to capture the links between live and inanimate nature in the geological past. Including the complete content of the educational unit Inanimate Nature in a single subject and year allows a complex syllabus of the field within the ISCED 2 level. We consider this approach preferable to fragmenting the geological content among different subjects, so it is not recognised as geology. However, some negative trends arose from the content analysis of curricular documents of both countries, for example, the low time allocation for the subject of Biology in the ninth year of study and the inclusion of content from another educational field, most commonly Ecology, in the same year. This further reduces the time for teaching the field of Inanimate Nature and Geology.

The adequacy of the scope of the educational content and teaching methods

Geology education in Czechia and Slovakia emerges from the traditional structure of the field. Individual branches (mineralogy, petrography, endogenous and exogenous geological processes, etc.) appear seemingly independently within the curriculum. Pauk (1979) indicated many deficiencies in this type of arrangement. It hinders cross-curricular relationships, such as the relationship between geological processes and the origin of minerals and rocks, and tends towards overwhelming with separate facts. It does not develop geological (i.e., spatiotemporal) thinking of pupils. This concept also makes the continuous modernisation of educational content and teaching aids difficult for teachers (Pauk, 1979, p. 22).

The more theory geology classes provide to pupils, the lower the possibility of individual and discovery activities (Pauk, 1979). Overly theoretical

content leads to presentation without cooperating with pupils and to knowledge memorising. The inappropriate content and range of curriculum results in a negative attitude towards the field. Czech teachers report pupils' lack of interest in geology, in line with the worldwide trend (Fermeli et al., 2015; Lewis, 2008; Meléndez et al., 2007). The cause is mostly seen in the oversized geology curriculum, uninteresting content for pupils, and overly abstract, theoretical, and impractical knowledge (King, 2012). The Czech in-service teachers, who responded to the survey, considered the neutral or negative pupils' attitude to geology to be because pupils learn the content but fail to see a clear personal benefit for the future. They also stated that pupils come to classes with a certain aversion to the subject of geology. Moreover, the teachers themselves are supposedly not passionate about teaching geology, and thus they do not have the capacity to motivate pupils. Dvořáčková et al. (2019) state that Czech university students of the biology and geography teaching study programmes take as little as one semester of geology in some cases. This is far too little for future biology or geography teachers to develop a positive relationship with the subject. It fails to prepare teachers capable of efficiently explaining the complex links between inanimate nature, animate nature and human beings and to motivate the building of positive attitudes to inanimate nature.

The curriculum should cover the most general essentials of geosciences and be formulated accessibly, supporting demonstrations and practical use. Teachers should use examples from close surroundings and from practice and show the links to current and attractive examples (e.g., biota evolution and large extinctions). Geology should not burden pupils at the ISCED 2 level too much with regional geology. The emphasis on facts (esp. crystallography, systematic mineralogy, and petrography) should be reduced only to basics, especially at the lower secondary level and should be presented in an interactive way. More attention should be paid to the physical and chemical essence of geological processes and their links. The process should use cross-curriculum relations (e.g., crystallisation processes from chemistry or physics). Significant shifts in the subject matter of geosciences and the development of new disciplines (environmental geology, global climate processes, low-carbon energy, etc.) need to be reflected. However, geosciences worldwide are often taught by teachers trained in a completely different field or with inadequate training (e.g., Lewis & Baker, 2010), who need proper motivation. Teacher motivation based on a person's autonomous motives or based on enjoyment and interest tends to last long and proves most effective, according to the self-determination theory (Vojáčková, 2020). Any change in the curriculum or partial interventions in its form is a long-term affair. The results of Pešková et al. (2019) suggest that even a ten-year period is sufficient

to change teachers' mindsets with respect to educational change. According to their study, the reform ideas should be explained at the level of individual school subjects; for secondary school teachers, it is necessary to define the educational aims in a different way than just in the intended curriculum. The development of coherent support for geology teaching in the form of further training for teaching staff and the provision of more detailed syllabi for geology teaching seems to be a suitable solution. Pešková et al. (2019) state that teachers' voices should be heard, and they should be involved in the preparation of the reform process. This would enable the reform to respond to the teachers' specific needs and experience and support their ownership of the reform (Sandholtz, 2002).

Nevertheless, the need for restructuring geology education relates to re-assessing the educational goals in addition to other things. They should aim at forming the pupil's whole personality, practical skills, critical thinking, forming work hypotheses, and evaluating them (Rocard et al., 2007). In general, CZC does not take this direction and fails to reflect the needs. It defines the learning outcomes rather widely and generally. Current CZC still emphasises terminology, classification, and encyclopaedic knowledge. The survey among Czech in-service teachers confirmed this fact. Since 2005, when CZC was established in schools, several minor changes were provided, and in 2021 the revised CZC was issued (MŠMT, 2021). However, this revised CZC version does not differ in this respect. It only introduces the educational area of Informatics and places the development of digital literacy at the level of key competencies. As a result, learning outcomes in other educational fields of CZC were reduced. Specifically, the number of geological learning outcomes fell from six to three with the same phrasing. A comparative study of curricular documents of selected European countries points out several deficiencies of CZC in this area (Kácovský et al., 2021). The innovated 2015 version of SKC (ŠPÚ, 2009) has changed significantly compared to the original version (ŠPÚ, 2009). The educational content decreased considerably, and the original 67 learning outcomes shrank to 21 newly formulated ones, although none of the main geological topics was eliminated. The new formulation of learning outcomes focuses more on the pupils' activities and deeper understanding of natural processes, as well as on simulating scientific work, observation, perceiving relations in time and space, and interdisciplinary approach. The performance standards largely reflect the daily life and immediate surroundings of pupils.

In both of the curricula we have researched, there is a lack of emphasis on using digital technologies across science subjects. To be effective in changing environment of education, it is also required that the builders of the new education system understand the imperatives of the technologies influencing

the changes in education. NCCA (2004) presents three main frequently cited arguments for implementing digital technologies in education. The first is related to the potential benefits of ICT for teaching and learning, including possible gains in motivation, problem-solving abilities, collaborative skills, and other factors. The second rationale is based on the ubiquity of technology and the consequent need to acquire digital competence and its application in the knowledge of our society. The third related argument expresses concern about the digital divide in society. The main reasons for this gap are considered to be the lack of physical access to technology, and limited literacy, numeracy, and problem-solving skills. To be fair, we examined mainly the passages of CZC and SKC devoted to the learning outcomes, so it can be assumed that the requirement for interdisciplinary use of digital technologies might be formulated in the general passages of both curricula. However, in the context of the abovementioned arguments, we believe that the requirement of using ICT and developing digital competence essentially needs to be formulated directly as a part of the compulsory educational content of individual subjects.

Conclusions and Recommendations

The study analysed the national curriculum documents in the Czech Republic (CZC) and the Slovak Republic (SKC) from the perspective of the scope of the educational content of geology, the formulation of learning outcomes related to this field of study, and the recommendation of appropriate teaching methods. Both countries integrate the geology curriculum at the ISCED 2 level rather unconventionally into the subject of Biology. The scope of the syllabus of geology in both countries is broad and comprehensive at the ISCED 2 level. However, due to the thematic breakdown, the individual disciplines (e.g., mineralogy, petrography, endo- and exogenous geology) are presented almost separately. This often leads to an overload of content with isolated facts. We suggest that the geology syllabus should systematically cover key global geological processes from forming of the Earth to processes in the mantle and crust, followed by an explanation of exogenous processes. The global ecosystem development should mention popular extinct organisms. Special attention should be paid to areas that teach pupils environmental protection, including the rock environment. Emphasis should be placed on the links between the development of inorganic nature and the origin and evolution of life.

The clear difference between both analysed curricula is their extent: the more detailed SKC has seven times as many geological learning outcomes as the rather brief CZC. The learning outcomes are formulated differently. Conceptual

and Procedural Knowledge are required to the same extent. CZC plays a role of a document that defines mandatory claims of education at a given level. Its formulations remain general. Therefore, they do not provide a possible source of inspiration for geology teachers. In contrast, SKC reflects the importance of using appropriate teaching methods at the level of learning outcomes. Thus, it provides teachers with appropriate support. We consider a higher proportion of problem teaching, laboratory and fieldwork, observation, and experiments in classes represents the desired tool to increase the social prestige of geology. Field trips and excursions can demonstrate geological and geomorphological phenomena and processes, aspects related to the use of landscape and its protection, the links between the bedrock and flora biodiversity, or risks related to geological processes (landslides, erosion, or flooding). It is convenient or even necessary to implement the requirements for suitable methods of teaching natural sciences into the learning outcome formulation of individual subjects. In our opinion, their general description in the generic parts of the curriculum is inadequate.

We consider ICT to be a cross-curricular component for all school subjects. Effective implementation of ICT across the curriculum is complex and involves strategic management and coordination within whole national and school policies. According to United Kingdom Department for Education (2004), it is crucial that pupils be taught the appropriate ICT capability before applying it in other subjects. Therefore, subject teachers need to know what they can reasonably expect a pupil to know, understand and be able to do. The use of ICT needs to be purposeful and carefully integrated into the subject lessons, with a clear rationale for its use. Therefore we believe that the requirement of developing digital competence needs to be formulated directly as a part of the compulsory educational content of individual subjects.

Based on the researched studies and content analysis of both curricula, there are several potential factors that influence geology education at the level of the intended curriculum. To at least partially avoid the described shortcomings resulting from the design of the national curriculum, geology education requires:

- interdisciplinary understanding and presentation as an integral part of natural sciences
- interpretation of geological knowledge in a broader context and links to everyday life
- using especially practical tasks, observation, and fieldwork
- incorporating cross-curricular demands (e.g., working with data, using ICT, conducting practical and fieldwork) explicitly into the specific learning outcomes

- supporting current teachers of geosciences and motivating them by offering them further training with various seminars, workshops, and more detailed syllabi for teaching geology. Experts in the field (i.e., didactics of geology) and teachers should participate in this training so that the support developed is maximally adapted to the target group and, at the same time, respects the professional aspect of the field.

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Success in Education by Defying Great Odds: A Positive Deviance Analysis of Educational Policies

Eva Ponte[1]

Education is seen as a resource at a global level but is currently considered to be in crisis in many parts of the world. This constitutes a significant drawback in terms of humanity's prosperity and well-being since education is the key not only to an educated workforce but also to humane, collaborative, and caring societies. Even within this dim landscape, there are certain educational systems that defy the odds and perform significantly higher than their otherwise comparable systems. This paper proposes using an unusual lens for educational policy comparative studies, that of positive deviance, to aid us in progressing towards a more stable educational state of affairs. Using a positive deviance methodology, which focuses on learning what is working well in systems that defy and overcome substantial challenges, this study investigates the patterns, attitudes, and actions of three selected cases: Massachusetts as a positive deviant in the US, Estonia as a positive deviant in Europe, and Castile-Leon as a positive deviant in Spain. The purpose is, by analysing educational policies, laws, and other related documents, to find commonalities that explain why these systems outperform others. The results of the comparative analysis pinpoint areas and strategies informative to those leading struggling educational systems, such as a strong commitment to equity and justice, placing teachers at the centre of reforms, using assessment as a tool for process monitoring and summative inquiry, and making preschool education accessible to all.

Keywords: education, educational improvement, educational policy, learning crisis, positive deviance

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Uspeh v izobraževanju prek kljubovanja velikim izzivom: analiza pozitivne deviacije izobraževalnih politik

Eva Ponte

Izobraževanje velja za vir na svetovni ravni, vendar se trenutno v veliko delih sveta zdi, kot da je v krizi. To je velika pomanjkljivost za blaginjo in dobro počutje človeštva, saj je izobraževanje ključ ne le do izobražene delovne sile, ampak tudi do humane, sodelovalne in skrbne družbe. Vendarle pa v tej temačni sliki obstajajo nekateri izobraževalni sistemi, ki kljubujejo razmeram in dosegajo bistveno boljše rezultate kot njihovi siceršnji primerljivi sistemi. Ta članek predlaga uporabo neobičajne perspektive za primerjalne študije izobraževalne politike, tj. pozitivne deviacije, ki nam lahko pomaga pri napredku k stabilnejšemu stanju na področju izobraževanja. Z uporabo metodologije pozitivne deviacije, ki se osredinja na učenje o tem, kaj dobro deluje v sistemih, ki kljubujejo in premagujejo velike izzive, ta študija raziskuje vzorce, stališča in ukrepe treh izbranih primerov: Massachusetts kot pozitivni deviant v ZDA, Estonija kot pozitivni deviant v Evropi in Kastilja - Leon kot pozitivni deviant v Španiji. Namen je z analizo izobraževalnih politik, zakonov in drugih povezanih dokumentov najti skupne značilnosti, ki pojasnjujejo, zakaj so ti sistemi uspešnejši od drugih. Rezultati primerjalne analize opredeljujejo področja in strategije, ki so informativni za voditelje izobraževalnih sistemov, ki so se znašli v težavah, kot so: močna zavezanost enakosti in pravičnosti, postavljanje učiteljev v središče reform, uporaba ocenjevanja kot orodja za spremljanje procesa in sumativno raziskovanje ter dostopnost predšolske vzgoje za vse.

Ključne besede: izobraževanje, izboljšanje izobraževanja, izobraževalna politika, kriza učenja, pozitivna deviacija

Learning Crisis

Even though we have abundant research on what works in education and have a strong sense of what needs to be done to obtain optimal learning, there are significant disappointments in many educational systems. Globally, there is a perception of an existing learning crisis. For example, there are still many children who are not schooled all the way up to secondary education and, even when schooled, children from low-income backgrounds struggle to master basic skills in math and reading (Oketch, 2021; UNESCO, 2018; World Bank, 2018). Similarly, in many countries, immigrant students or children of immigrant families significantly underperform their peers (Šori et al., 2011), and the educational gap persists (Hanushek et al., 2019). This learning crisis is more salient in least-developed countries (Friedlander et al., 2019), but it also affects disadvantaged students in developed or developing countries. In recent decades, educational reforms have been initiated at the local, country, and international levels but rarely land the results they were set to achieve (Niemi, 2021).

With the advent of the health crisis created by the Covid-19 pandemic, there has been an increase in the already existing educational breach between more and less affluent students (Hofmann, 2021). Therefore, the need to focus on education and improve our teaching and learning at a global level, which was already important, has now also become urgent. One possible way to help individuals and governments is to define key aspects of what constitutes an effective educational system by applying a positive deviance approach. Specifically: in light of all the social, economic, and political challenges, which educational systems have thrived and how? The aim is to research how, given negative odds against them, some educational systems have found ways to design and implement quality educational systems that also target equity.

This paper contributes to the discussion by applying a novel lens, that of positive deviance, to examine how three different systems have overcome educational challenges, crafting a model with commonalities that could be applied to other educational systems. Using data from reliable and valid sources, the paper provides individual and aggregated data to inform the problem and support suggested solutions.

There are positive outliers at many levels. We focus here on three proven and documented outliers: Massachusetts within the United States, Estonia in northern Europe, and Castile and Leon in Spain in southern Europe. These systems are vastly different, but all provide clear examples of how educational systems that are believed to be in crisis can overcome the odds.

Is There Really a Problem?

In this section, data is used from large-scale studies and other sources to shed light on the existence and magnitude of the problem.

Student (Under)Performance in the US

There are three sources of large data available to examine US students' performance in the US over time: the National Assessment of Educational Progress (NAEP), the Trends in International Mathematics and Science Study (TIMMS), and Programme for International Student Assessment (PISA).

NAEP, also known as the 'Nation's Report Card', measures student mastery of content in various core subjects in grades four, eight, and twelve. NAEP results have mostly been stagnant for the last 20 years. The most recent report, from 2019, shows that two-thirds of eighth-grade students were not proficient in reading or math (National Assessment of Educational Progress, 2019a). The scores decreased in mathematics and reading for lower-performing students, while the performance of higher students has improved, therefore widening the already existing gap.

TIMSS is an international initiative assessing math and science content in grades four and eight. In math, US fourth graders ranked 15th in 2019, declining from ranking 11th in 2015, while eighth graders ranked 11th in 2019, falling from the 9th ranking of 2015. In science, US fourth graders ranked 8th in 2019, unchanged from ranking 8th in 2015, while eighth8 graders ranked 11th in 2019, dipping from the 8th ranking reached in 2015 (U.S. Department of Education, 2019).

During the 1960s, the OECD put forward the idea economic growth may depend as much on the increase in human capital (education) as on the changes in physical capital (machines, buildings). This led the OECD to gather statistics on student achievement, and PISA was launched to measure student performance in reading, math, and science in grade ten (the end of compulsory education for most OECD members) (OECD, 2017). PISA results have never been excellent for the US: changes from one implementation year to the next have remained statistically non-significant. The most recent report shows that US students are flat in math and science and perform relatively better in reading (OECD, 2019a).

Education Secretary Betsy DeVos said, based on the NAEP results, that there is a 'student achievement crisis' (Green & Goldstein, 2019). Schneider (2019), director of the Institute of Education Sciences at the USDOE, points out that PISA scores tell us about the 'sad state' of US education. Daniel Koretz, a well-known expert on assessment and testing, was quoted saying that recent

test results show that 'it's really time to rethink the entire drift of policy reform because it just isn't working' (Goldstein, 2019). In addition to testing experts, educational research leaders, scholars and politicians, the public at large is also sceptical of US students' learning and performance, with only 29% of Americans and 16% of scientists rating the country's K-12 education in STEM as above average or the best in the world (Pew Research Center, 2015).

The Promises and Perils of the EU Educational Systems

Data from PISA and from the Programme for the International Assessment of Adult Competencies (PIAAC) are used in this section to make a case regarding the shortcomings of the EU educational systems.

The 2018 PISA results indicate that at least 20% of students in the EU have very low proficiency in reading, mathematics, or science (with 21.7% of underachievers in reading, 22.4% in math, and 21.6% in science). During the years 2009–2018, science and reading performance worsened in Europe, while math performance remained unchanged. There are also major differences in student performance between EU Member States, with underachievement rates ranging from a low 4.2% in Estonia to a high 31.9% in Bulgaria. Only four EU Member States met the EU 2020 benchmark of having an underachieving rate of less than 15% in reading (Estonia, Ireland, Finland, and Poland), math (Estonia, Denmark, Poland, and Finland) and science (Estonia, Finland, Poland, and Slovenia). The results also point out that across the EU, countries with a large share of low performers are also likely to record large performance gaps between students from low and high socio-economic backgrounds (European Commission, 2019).

PIAAC is designed to measure adult literacy skills in digital environments, focusing on key skills that individuals need to participate in society and contribute to economic development. The initial cycle of PIACC took place between 2011 and 2012. (The second cycle will take place in 2022–2023.) The European Commission (2013a) findings present a dim picture of adult literacy: one-fifth of the adults and one-quarter of the unemployed adults show low literacy and numeracy skills; the adults with low proficiency fall easily into the 'low skills trap'; and 25% of the population lacks the skills to use ICT successfully.

Overall, these findings highlight the disparities amongst member states, the underachievement of the students and the working force, and the inequalities associated with socioeconomic (and, to some degree, migrant) status. As the EU Commission (2019) points out when discussing said low performance: 'This is not only a worrying social issue, but also a drag on EU future economic competitiveness' (p. 14).

Spain is Different… or Not?

The most recent OECD assessment results show a gloomy picture for Spanish students. In this section of the paper, the results of PISA, TIMMS, PIRLS, and PIAAC are presented.

PISA 2018 results show the performance of Spanish students in reading, math, and science is far from the country and European learning objectives (OECD, 2019b). While the newspaper headlines paint a dismal picture of the results of this test, with headings such as 'Spanish students sink in science' (Torres Menárguez, 2019) or 'A crash in science and math of 15-year-old students' (Torres Menárguez, 2020), the OECD presents results in a much more neutral light, pointing out that, even though Spanish students scored lower than the EU average in math and science, if one looks at the long term trends and taking into account previous year's results, it would not be possible to determine an upward or downward trajectory. (The results in the reading were deemed invalid due to some plagiarism concerns.) Overall, even with the statistical caveats raised by the OECD, PISA results are not considered positive.

The TIMSS report shows results similar to those found by PISA: In math, the results are two points ahead of the overall average but far from excellent and show no improvements with respect to the 2015 outcomes (505 in 2015 versus 502 in 2019; EU average is 527) (Mullis et al., 2016; Mullis et al., 2020). In Science, the results are not excellent either, with a seven-point decrease, from 518 in 2015 to 511 in 2019 (EU average is 526) (Martinet al, 2016; Mullis et al., 2020). The TIMSS data seems to ratify the poor Spanish results from PISA.

PIRLS outcomes from 2011 (Ministerio de Educación, Cultura y Deporte, 2017) indicate that Spanish students had improved their reading scores compared to the previous administration of the test but still were 11 points behind the UE average and 12 points behind the OECD average. In 2016, the results went up 15 points, but the average was still below the EU and the OECD average by 11 and 12 points, respectively. This was portrayed as 'yet another failure' of Spanish students in reading (Ibáñez, 2017). It was also pointed out that Spanish language scores were 53 points away from the higher performer (Russia), deemed equivalent to falling behind a whole academic year (Sanmartín, 2017).

Finally, data from PIAAC placed Spain at the rear end in math performance and second to last in reading comprehension among a total of 23 countries, which some read as indicating that Spanish adults have the worst education in the developed world (Yagüe & Ibáñez, 2013).

The data shows that the state of education in Spain is not optimal, although probably also not as bleak as the media reports. It is clear, though, that there is room for improvement.

Using Positive Deviance as a Lens to Study Educational Systems and Suggest Improvements

Positive Deviance is an asset-based approach. Its aim is to find organically crafted social solutions to complex problems of a social nature, grounded on the idea that in every group, there are a few individuals or subgroups who use uncommon or novel practices to accomplish better solutions to problems than those around them who experience the same challenge. To implement it, the focus is on people in communities or organisations who have made significant headway against a specific issue of the characteristics mentioned above. These individuals or groups are labelled 'positive deviants'. The spread of those solutions to others in similar situations is labelled as the Positive Deviance (PD) approach (Pascale et al., 2010).

In addition to uncovering the 'bright spots', the PD approach presumes that positive deviants are not always known or not sufficiently known to others and thus, a structure for uncovering is initiated. The next step is sharing the knowledge gathered with others by designing interventions that provide the opportunity to spread the positive deviant behaviour quickly and widely.

The term 'PD' first surfaced when it was used in an article by Samuel Wishik and Susan Van der Vynckt (1976) about the search for PDs to identify good dietary practices of families with young children. The project and book written by Richard Pascale and colleagues (Pascale et al., 2010), which recounts the response to a malnutrition initiative in Vietnam, received notable attention and thus provided visibility to the approach at a larger scale. The PD methodology has been used since then in several countries to target a wide-ranging variety of difficult social problems (Le Mahieu et al., 2017).

This approach has been used in a few PD initiatives in education to study solutions to high dropout rates in the US from general populations and subgroups such as minority students and students with disabilities (Ayala, 2011; Kallman, 2012; Malloy, 2012; Niederberger, 2011); enhance African American college graduation rates (Harper, 2012); and improve the psychological resilience of adolescents from the Netherlands participating vocational training programmes (Bouman & Singhal, 2014).

There has not been, however, an application of the PD framework with a supranational approach, which is the purpose of this paper, which studies

PD at the US, European Union, and Spanish levels. In the US, we will focus on Massachusetts. In Europe, we will focus on Estonia. In Spain, we will focus on Castile and Leon. In the following sections, we explain each of these educational systems and why they have become PDs.

Methodology

Approach

While the PD framework has been applied to the educational field, there has not been an application of the PD framework with a supranational approach at the educational system level, which is the purpose of this paper. In the following sections, the educational systems of the US, European Union, and Spain are briefly explained, with an ensuing discussion about how Massachusetts, Estonia, and Castile and Leon have become positive deviants. These educational systems were selected based both on the scientific literature and the media news about success stories in education which defy all odds and demonstrate the outstanding, against-the-odds achievements made by the above-mentioned educational systems.

Participants

This study was carried out using data from various international reports based on achievement and other types of tests (e.g., reading or computer use habits). The NAEP 2019 sample was comprised of 149,500 and 147,000 4th and 8th graders in math and 150,600 and 143,100 in reading (NAEP, 2019b, 2019c). Spain's PIAC results for 2013 were based on a sample of 6,055 participants, the US had 5,010 participants, and the total sample was 157,000 (OECD, 2013b). Regarding PIRLS, 8,580 students were part of the 2011 sample (Joncas & Foy, 2011), and 14,595 students participated in the 2016 sample (LaRoche & Foy, 2017). The sample sizes for PISA 2018 were as follows: 5,316 Estonia, 35,943 Spain, and 4,838 US out of 600,000 total (OECD, 2019c). There were 1,876 students in Castile y Leon (Consejería de Educación de la Junta de Castilla y León, 2018), and the sample size for PISA 2015 was comprised of 1,700 Massachusetts students (Massachusetts Department of Elementary & Secondary Education, 2016). There were 10,029 4th-grade and 10,221 8th-grade US participants and 7,764 4thgrade Spanish participants in TIMSS 2015 (Martin et al., 2016), with similar samples sizes in TIMMS 2018: 8,776 4th graders and 8,698 8th graders from the US and 9,555 4th graders from Spain (Martin et al., 2020). Therefore, all the studies cited in the paper were based on representative samples of the respective populations.

Materials and Documents

Official documents from education departments, previous and existing educational initiatives, norms and laws, and statistical and educational reports from the regions and countries included in the study were reviewed to analyse the educational trajectories and reforms of said educational systems. This official document search and analysis was complemented by the gathering of media and news documents and reports as well as websites. Secondary data sources such as published academic texts and policy papers were also reviewed. All these materials and documents are cited throughout the text and included in the reference section of this paper.

Research Design

The analysis focuses on common patterns amongst all three case studies to establish highlights that other systems could use as references. The initial step was to select the three systems, as discussed above. Once this selection was completed, a multilevel process was implemented. First, a literature review was conducted on each of the educational systems selected. Second, the literature review was completed with an analysis of news media focusing on said educational systems. Third, the analysis was completed with a document review of educational initiatives, norms, and laws relevant to the themes that emerged in previous phases. Given all this information, the most salient and supported factors for the accomplishments of the selected educational systems were listed in order of magnitude, and from that ranking, the ones on the top were included in the paper. The results are presented so the reader can get a sense of the most relevant educational policies and reforms implemented in the selected optimal systems. It should be noted that none of the selected systems is perfect, even if they represent success stories that ought to serve as inspiration and guidance to those making decisions about their own educational systems.

Results

Positive Deviance Case 1: Massachusetts

Massachusetts ranked as highly as Finland (often used as the 'poster child' in comparing educational outcomes from OECD countries) in the 2015 PISA results (Massachusetts Department of Elementary & Secondary Education, 2016). In reading, students obtained an average of 527 compared to the 497 US average and

the OECD average of 493. No national education systems scored statistically higher, although eight had scores similar to that of Massachusetts, including Finland and Singapore. In math, MA students obtained an average of 500 *vis-à-vis* averages of 470 in the US and 490 at the OECD level. Eleven educational systems statistically outperformed the US, including Singapore. In science, students in public schools in Massachusetts are considered high performance, scoring an average of 529, versus a 496 average in the US and 493 for the OECD. The only education system that performed with a statistically significant higher average was Singapore (556). Moreover, while, on average, science performance declined at the OECD level between 2012 and 2015 (from 501 to 493 points), the Massachusetts average recorded was not significantly different from that of the previous administration.

How did Massachusetts become a positive outlier? One theory is that starting in 1993, there was a bipartisan effort to make sure that students from all backgrounds made good progress. The Massachusetts Education Reform Act (MERA) created Chapter 70, under which districts had to spend more than the minimum required expenditure calculated for each district to avoid monetary penalties. In addition to this adequacy measure, the Chapter 70 formula also includes a factor to provide more funds per pupil for poorer districts, therefore making MERA an equity-based school finance reform (Kim, 2018). The goal was to get everybody to perform well and not merely boost performance in some pockets. The outcomes do confirm this to some extent, as Commissioner Mitchel Chester indicates that just 14% of the variation in the students' science scores is attributable to the economic background of families, while instruction and district practices affect 86% of said variation (Wong, 2016).

The philosophical concept sought by Massachusetts leaders was equity, understood broadly as trying to level the field between rich and poor. The goal to include all students was not just rhetorical; by 2000, the state had to double its funding of public education when compared with 1993. Paul Reville, former education secretary, claims that three strategies have made the difference: a) enhanced early education; b) an expanded school day resulting in significant salary increases; and c) huge boosts to teacher training (Rowe, 2016). The plan called for substantial funding paired with very high expectations for achievement, which led to district takeovers when their performance was not adequate.

From a pedagogical perspective, Massachusetts has made a strong effort to improve teaching and performance assessments. With respect to teaching, the state implemented several policies, with the Massachusetts Task Force on the Evaluation of Teachers & Administrators being a central one by which teachers go through a five-step cycle for continuous improvement. Even though teacher evaluation has been a hot topic that has generated a great deal of discussion in

the field, when implemented properly and along with other measures focused on improving teaching and learning, it can be proven effective even in challenging, high-poverty schools (Reinhorn et al., 2017). In relation to assessment, Massachusett's focus on new assessment models is backed by research studies that have found that the implementation of performance assessment leads to better classroom instruction and higher student outcomes (Darling-Hammond & Rustique-Forrester, 2005). The Massachusetts Consortium for Innovative Education Assessments not only aims to provide indicators of academic learning to all constituents but also seeks to have teachers participate in the Quality Performance Assessment Institute to become experts and leaders who can create high-quality performance assessments (French, 2018).

Positive Deviance Case 2: Estonia

Estonia's student performance shone in PISA 2018. In reading, Estonia scored an average of 523 points in contrast to an average of 487 points in OECD countries. In math, Estonian students scored 523 points on average compared to an OECD average of 489 points. In science, the average score in Estonia was 530, while in the OECD was 489 points. Only 6% of the variance in reading performance is explained by socio-economic status in Estonia versus an OECD average of 12%. In reading, the average difference between advantaged and disadvantaged students stays at 61 points, compared to the 89 points OECD average. Finally, 16% of disadvantaged students are academically resilient, while the OECD average remains at 11% (OECD, 2019d).

A leading force towards this outstanding performance was the Ministry of Education and Research's aim to achieve what Mailis Reps, the education minister, has termed the 'Nordic level of equity' (Jeffreys, 2019). This leading politician also points out that, to achieve that aim, a high cost needed to be addressed. While the literature analysing the impact (or lack thereof) of funding on student outcomes is contentious and has not historically offered clear guidance, a relatively recent study from the Natural Bureau of Economic Research (Lafortune et al., 2018) indicates that, while there is no immediate effect of reforms on achievement, there are clear changes in achievement trends over time: ten years after the reform, relative achievement of students in low-income districts increases by about 0.1 standard deviations. Consequently, the authors argue that the advantages of marginal investments in school resources in low-income, poorly resourced school districts exceed the costs.

As seen earlier in the case of Massachusetts, Estonia also made a clear and unwavering commitment to early childhood education. Compulsory

schooling starts at the age of seven, but parents rely on preschool to get their children ready, so almost every child in Estonia (89%) goes to public early education from the age of three (Eesti Statistika, 2020). Preschool is not free, but parents make a capped contribution based on income (Herd, 2020). In addition, the activities one can observe inside the classroom are more of a 'Nordic' nature, in that kindergarteners are expected to learn through play directed by teachers; they are not graded against tests but rather receive descriptive school readiness report cards, and advance as soon as they become emotionally and physically ready to learn (Jeffreys, 2019).

Another strategy used in Estonia is to provide high quality universal basic education for all; specifically, Estonia puts all levels of ability together. Separating students into different levels of ability is seen as a counterproductive segregation strategy that results in pockets of achievement but does not improve the overall student performance of the nation. Teachers are expected to find ways of levelling up students from all backgrounds within a couple of years. How is this accomplished?

The education system in Estonia gives teachers a relatively high level of freedom to take risks in how they design lessons. Moreover, following the recommendation given by the OECD (2013), which indicates that professional standards can be used to ensure quality in teacher education, Estonia's teacher professional standards were developed in 2005. In 2013, with input from professionals in the field, a new system of standards was developed. These standards were used to verify teachers' competence and also to serve as guidelines for teacher education curricula and as an evaluation tool. A study indicates that the teacher professional standards have been successfully used to design pre-service teacher education and award certificates at the end of the studies, although the results are not as positive for in-service teachers (Pedaste et al., 2019).

From a pedagogical perspective, Estonia has made a strong e-schooling effort, whereby homework is done and graded online, books are borrowed and read electronically, and schools are supported in assessing students online at ages 10, 13, and 16 (Jeffreys, 2019). This is further supported by a curriculum that focuses on problem-solving from an early age and the transfer of knowledge (Hemmi et al., 2021). Assessment is also at the centrepiece of the educational system starting from early on; for instance, the Early Childhood Classroom Observation Measure calls for direct observation and helps Estonian teachers implement a child-centred approach conducive to higher reading performance (Tang et al., 2017).

Positive Deviance Case 3: Castile and Leon

Castile & Leon (C&L) is an autonomous community of Spain that has consistently outperformed the other communities (Spain is divided into 17 autonomous communities with educational authority). In 2015, C&Ls PISA results (Consejería de Educación de la Junta de Castilla y León, 2015) in reading was 522 average points versus 496 from Spain and 493 and 494 of the OECD and the EU, respectively. In math, C&L students obtained an average score of 506, above the Spanish, OECD, and European ones (486, 490, and 493, respectively). The results in science were even more salient in favour of C&L, with their students scoring an average of 519, compared to 493 for Spain and the OECD and 495 for the EU. The total average score from Castile & Leon was the highest in the country (516), above the EU (494) and positioning C&L in the seventh position within the autonomous communities in Spain.

The 2018 PISA results do not include reading as per OECD guidelines due to some anomalies in the administration and scoring of the tests in some regions in Spain. In Math, C&L scored 502 on average, compared to 491 in Spain, 489 in the OECD and 494 in the EU. In Science, C&L scored 501 on average, compared to 483 in Spain, 489 in the OECD and 490 in the EU. While the average scores declined from 2015 to 2018 (as they did on average for the OECD), C&L remains 12th in math and 14th in science. C&L recorded a high percentage of high achievers similar to that of high-performing countries (Consejería de Educación de la Junta de Castilla y León, 2018).

An important aspect of the C&L's success is its focus on equity. C&L spends at the higher end of the spectrum in terms of investment in public education at the non-tertiary level (Ministry of Education, Culture and Sport, 2016). In addition, various programmes were implemented to reduce educational gaps. For example, with the Programme for the Improvement of Educational Attainment, schools that perform below the expected average receive additional support to improve their performance, providing disadvantaged students with a differentiated educational plan aligned with their needs (Boletín Oficial de Castilla y León, 2014). This has resulted in C&L being one of the autonomous communities in Spain with the highest equal opportunities index (Villar, 2018). More recently, the regional government has launched the 2030 Programme, which aims to support quality education for all and to eliminate educational segregation due to socioeconomic factors (Boletín Oficial de Castilla y León, 2018).

Another reason for C&L's educational success is its teachers. Fernando Rey, the region's educational adviser, argues that this is so because the teaching

task force is better qualified and more stable than that of the rest of the nation, with high motivation to learn and the tools to do so (like regular afterschool faculty meetings to improve teaching and learning) supplemented with high expectations for themselves and for students, guided by rigorous standards and assessment (Díaz, 2016). There is also a strong commitment to innovation and to supporting teaching excellence (Carreira, 2018).

To enhance the quality of the system, the pedagogical focus is on the evaluation of the educational processes, not just the outcomes. This includes self-assessments, both individually and in groups. There is a strong focus on formative evaluation as well as using performance indicators that provide continuous information about how the systems are working. External assessments have also been introduced to triangulate and recognise the status and qualifications of the educational system's players (González García & Vega Santos, 2018; Fernández, 2018).

Discussion: Using Positive Deviance to Improve Education

While the systems analysed above vary in terms of geopolitical areas, history, social context, and many other variables, there are certain aspects of all systems that represent PDs that have been done or are being done presently and thus constitute the essence of the lessons we can draw from this analytical exercise. Those commonalities are a) a strong commitment to equity and justice in education (even when introduced mostly as an investment strategy), b) placing teachers at the centre of reforms and focusing on professionalism, c) using assessment as a tool for both process monitoring and summative inquiry, and d) making preschool education accessible to the vast majority of students in that age range.

The evidence in terms of commitment to equity and justice in education is visible in Massachusetts's MERA initiative, Estonia's efforts towards achieving a 'Nordic level of equity', and Castile & Leon's Programme for the Improvement of Educational Attainment. While not all systems analysed in this paper followed the same line of work, all of them acknowledged the importance of addressing issues of equity. Indeed, research on OECD results shows that the schools with the best PISA 2000 results were those with the higher homogeneity in terms of school achievement (Demeuse & Baye, 2007).

Educational structures are also likely only to count in so far as they empower the teacher who is well trained and adequately financially compensated. This is a key finding from this paper and possibly one of the major challenges faced in terms of EU educational policy reform: 'how to ensure a teaching profession that

is attractive to the best and most motivated in the population' (Volante & Ritzen, 2016, p. 1,000). In Massachusetts, the aim to make huge boosts to teacher training required financial investment and was realised in several policy initiatives. In Estonia, the focus was on teacher autonomy combined with clearly defined teacher professional standards with high expectations for teachers. In C&L, there is a strong commitment to innovation and to supporting teaching excellence, focusing on innovative pedagogical practices, support for teaching excellence, and rigorous standards and assessments for students and teachers.

Placing assessment at the core of the educational system is something that was done in all the cases studied. Massachusetts focuses on academic indicators at the same time that teachers receive specific and mandatory training on performance assessment. In Estonia, the emphasis on performance assessment is also central to the system, starting as early as a preschool with observational assessment scales. In C&L, attention is paid to assessment both as a way to provide indicators to monitor the educational system and as a way to provide information and enhance the processes of teaching and learning and its results.

Both Massachusetts and Estonia had a strong commitment to early childhood education. In C&L, the effort is not as salient because the country as a whole has made and continues to make an effort towards early childhood education (specifically for the 0–2-year-old children since the 3–5-year-old period is already accessible and free for all), as can be seen in the most recent educational law, which calls for the public education system to guarantee a free spot for all students in the 0–2-year-old age group (Boletín Oficial del Estado, 2020).

Overall, the measures taken by the PD cases studied here call for a reasonable investment in education with a clear direction towards equity, always placing teachers at the centre of the educational system to ensure the highest learning by students, mostly via quality assessment systems. As an exploratory paper, one shortcoming is that no pre-existing comparison framework was utilised. Using the results from this paper and with a meta-analysis of other supranational comparative education papers, this study could also be replicated with a larger number of positive deviants included in different levels.

Conclusion

This paper originated with the premise that education is a valuable means to reach educated as well as humane, collaborative, and caring societies. High-quality education is the key to such success (Niemi, 2021) and calls for inclusive, teacher-centred, assessment-driven, and foundational educational reforms.

First, the needs of all learners shall be addressed: educational systems should provide the human and material resources for all students to succeed. An evidence-based decision-making and budgetary process are necessary to distribute funds and tools in effective ways, sometimes even providing more resources to some schools than others (as was clearly shown in the case of Massachusetts). While the public tends to call for 'equal treatment for all', the analysis in this study shows that the best strategy for the system as a whole is to focus on equity rather than equality.

Second, teachers have to be at the centre of educational reforms as partners in it (Harford & O'Doherty, 2016). Placing teachers as protagonists of educational change ought to start in the teacher education stage so that the transformative practices expected from in-service teachers are also present in teacher education programmes, enabling systems to reach not just 'best' practices but also 'next' practices that ensure success in uncertain and ever-changing futures (Schratz, & Symeonidis, 2018).

Third, the assessment should be evidence-based and enhancement-led, focusing on how to improve teaching and learning processes and products rather than gathering data to rank, compare, and penalise those struggling (Marion & Leather, 2015).

Finally, preschool education has proven (as notably shown in the case of Estonia in this study) to enhance subsequent education, including serving as an early prevention dropout (Field et al., 2006); therefore, it must be a given starting point for all educational reforms.

In our global world, educational policies are interrelated, and often solutions to common educational problems are found in various geopolitical areas. Through a positive outlier lens, this paper has revealed and highlighted some of these solutions with the hope of supporting evidence-based educational reform efforts.

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Chronotypes, Disruptive Behaviour, and Schedules in Classrooms: 'Morningness' and Psychomotor Agitation

Sandra Figueiredo[1]

This empirical cross-sectional study explored the effect of chronotypes on classroom behaviour. One hundred and forty young Portuguese children, from 1st to 4th grades, were examined regarding their chronotype and disruptive behaviours occurring in the classroom. Three groups of chronotypes (i.e., morning, intermediate and evening) were identified. The Chronotype Questionnaire for Children evaluated the chronotype of children, and the Conners Scale – reduced version for teachers (self-report) identified the frequency of the following behaviours in the classroom: psychomotor agitation, inattention, and opposition. Multivariate analysis of variance and analysis of regression parameters showed that morning children are more agitated and impulsive compared to evening peers. Concerning academic achievement, students did not differ in the subjects Portuguese and Mathematics for both semesters when considering chronotype and controlling for covariates such as age and gender. Parental qualifications appeared as an influential covariate for the chronotype effect in disruptive behaviour. This evidence addresses the contributions of school policies and family supervision regarding young children: children have earlier evening chronotypes; chronotypes impact specific disruptive behaviours in the classroom; parents' education influences the sleep habits and behaviours of children in school; parents and schools need more support and evidence to correctly identify children's chronotypes, to understand how chronotype and sleep habits affect behaviours in the classroom, and to recognise that more studies should be replicated attending to the contextual factors of health outbreaks and war conflict. With reliable data, this study highlights concerns and novelties for education and psychology.

Keywords: chronotype, school policy, disruptive behaviour, young children, psychology

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Kronotipi, moteče vedenje in urniki v učilnicah: »jutranjost« in psihomotorična agitacija

Sandra Figueiredo

Ta empirična presečna študija je preučevala vpliv kronotipov na vedenje v razredu. Sto štirideset majhnih otrok od 1. do 4. razreda na Portugalskem je bilo vključenih v raziskavo o njihovih kronotipih in pojavljajočem se motečem vedenju v razredu. Opredeljene so bile tri skupine kronotipov (jutranji, vmesni in večerni). Z vprašalnikom o kronotipu za otroke je bil ocenjen kronotip otrok; s Connersovo lestvico – zmanjšano različico za učitelje (samoocena) – pa je bila ugotovljena pogostost naslednjih vrst vedenja v razredu: psihomotorična vznemirjenost, nepozornost in nasprotovanje. Multivariatna analiza variance in analiza regresijskih parametrov sta pokazali, da so jutranji otroci v primerjavi z večernimi vrstniki bolj agitirani in impulzivni. Kar zadeva učne dosežke, se učenci pri predmetih portugalščina in matematika v obeh semestrih ob upoštevanju kronotipa in nadzoru kovariant, kot sta starost in spol, niso razlikovali. Kvalifikacije staršev so se pokazale kot vplivna kovarianta za učinek kronotipa pri motečem vedenju. Ti dokazi obravnavajo prispevke šolskih politik in družinskega nadzora v povezavi z majhnimi otroki: otroci imajo zgodnejši večerni kronotip; kronotip vpliva na določeno moteče vedenje v razredu; izobrazba staršev vpliva na spalne navade in vedenje otrok v šoli; starši in šole potrebujejo več podpore in dokazov za pravilno prepoznavanje otrokovih kronotipov, razumevanje, kako kronotip in spalne navade vplivajo na vedenje v razredu, in za prepoznavanje, da je treba ponoviti več študij ob upoštevanju okoliščin, kot so izbruhi bolezni in vojni spopadi. Ta študija z zanesljivimi podatki izpostavlja skrbi ter poudarja novosti za izobraževanje in psihologijo.

Ključne besede: kronotip, šolska politika, moteče vedenje, majhni otroci, psihologija

Introduction

The investigation in chronobiology and psychology confirmed a relationship between the 24-hour cycle and the behaviour of individuals (Díaz-Morales et al., 2015; Gowen et al., 2019; Holler et al.; 2014; Owens et al., 2015; al., 2016). In the circadian cycle, sleep is the most important factor in understanding behaviour changes, mood fluctuation, and cognition (Huang et al., 2020; Lara et al., 2014). The shifts are most commonly studied in the relationship between sleep and the performance of adults, focusing on cognition (Mazri et al., 2019; Melo et al., 2019; Melo et al. al., 2019; Razavi et al., 2019). There is a lack observed in the literature about children and pubescents and their cognitive fluctuations attending to their sleep changes and habits (Hahn et al., 2012; Lara et al., 2014). The predisposition to accomplish tasks needs to be understood, considering the chronotype and the youngest population.

Chronotype and predisposition in 24-hour cycles

The chronotype characterises individuals according to their preferences and willingness to perform their tasks at specific times of the day (Gobinath, 2020; Li et al., 2020; Touitou et al., 2016). When we refer to the individuals' preference, we mean their biological predisposition that biases wakefulness (thus with different wakefulness flows – being awake – in the 24-hour iterative period).

Morning individuals prefer to wake up and do their chores earlier, while evening ones prefer to wake up and do their tasks later. However, individuals considered intermediate are able to adapt at any time of the day (Horzum et al., 2014). Therefore, the morning type reaches acrophase earlier and the evening one later; acrophase is defined as the moment when individuals are able to have better performance (Lara et al., 2014; Menna-Barreto & Wey, 2007; Walker et al., 2014, cited by Figueiredo, Hipólito & Tomás, 2018).

These preferences and acrophases (and also bathyphases, when subjects are less awake and their cortisol is less active) have repercussions on daily performance (Lara et al., 2014). The external biological clock is not always aligned with the internal biological clock, which leads to synchrony failure or temporal incongruity, with the evening type being the most affected in terms of attention and psychomotor activation (Dorrian et al., 2017; Hahn et al., 2012). However, when there is no congruence between social and biological rhythms, which we call desynchronisation, consequences such as changes in physiological behaviours and disturbances that vary according to the chronotype can arise (Goldstein et al., 2007; Hahn et al., 2012; Kolomeichuk et al., 2016, as cited in Figueiredo et al., 2018).

Children's sleep is essential in order for there to be no disturbances in the developmental stages of brain and sexual maturation, behaviour and in academic performance (Rotta et al., 2018). Despite the abundance of studies on the relationship between adult chronotype and performance, there is a paucity of studies linking chronotype and behaviour in a school context (Oliveira et al., 2019), thus, in children. In Portugal, the continuation of valid studies on the influence of school-age children's chronotype on their academic performance and classroom behaviour is urgently needed (Clara et al., 2020; Couto et al., 2011; Marques et al., 2019; Reis et al., 2020; Rodrigues et al., 2018). The evidence that authors provide on the correlation, and even predictive analysis, between children's chronotype and their grades, is robust. However, the relationship between classroom behaviour and the geographic variable has not been considered (Friborg et al., 2014).

Sleep, performance, and classroom behaviour

International research shows that school hours affect adolescent behaviour and discipline due to periods of inattention as a consequence of the chronotype and delay in the phase that typically occurs in adolescence (Valdez et al., 2019; Zerbini et al., 2017). Adolescents, due to their genetic inheritance, prefer later times for the beginning of classes and assessments (Kelley et al., 2017; Werner et al., 2021). This preference for later times has also been seen in the university student population (Kelley et al., 2017). When the late preference is mentioned, we are referring to the subjects' cognitive predisposition to attend classes and carry out assessments, in an improved manner, at times later than those socially stipulated, and which favour the morning population. The decrease in performance leads to an increase in emotional instability and behavioural dysfunction, which has consequences on the mental health of adolescents (Gariépy et al., 2019). As for the school-age population, the issue of chronotype is still a problem when analysing the relationship between daytime type and times conducive to performance and balanced behaviour in class. Indeed, the chronotype of younger children is not entirely morning, as previous studies of instrument validation indicate (Simpkin et al., 2014). Children have a considerable variance that places them between morning and evening (Figueiredo et al., 2020), and this will have consequences on the performance of tasks done at different times. The morning group will have an advantage in the morning hours, while the evening type will perform better in afternoon tasks (Figueiredo & Hipólito, 2021). Evening children have a longer delay in the levels of melatonin needed to fall asleep at expected times, as well as being exposed to bright light before bed, until at least two hours before bedtime (Martínez-Lozano et al., 2021; Kolomeichuk et al., 2021).

With regard to discipline and disruptive behaviour in the classroom, studies are fewer for samples of children due to their chronotype characterisation. However, researchers in older studies found that sleep deprivation directly led to performance problems and to instability in the classroom due to lack of attention but not hyperactivity problems (Fallone et al., 2005). Recently, analyses of disruptive behaviours and the possible relationship with the morning type of children are lacking, except for some international studies (Sun et al., 2021). It is true that indicators were found in this relationship by Randler et al. (2016), as they determined that morning children (in the 9th grade) have positive emotions that are manifested earlier in the day, in contrast to evening children, who have an optimistic mood later in the day. This type of emotional predisposition certainly influences the mood in the classroom and, in turn, the stability of behaviours (especially psychomotor).

Eveningness as a risk factor in child development

In addition to the study of mood and emotional expression in the 24-hour period, studies such as those by Doi et al. (2016) also suggest that sleep deficits in the evening group cause irritability at home and in social tasks. Accordingly, this is another underlying factor in understanding the impact on discipline in the classroom. Considering the difference between morning and evening types, which affects the latter with regard to sleep, behaviour, and school performance, Arbabi et al. (2015) offer an essential reference to understand how the midpoint of sleep determines performance and motivation to learn in children in the first cycle (1st–4th grades) of education. Again, evening-type children show more negative values compared to the morning group regarding learning and initiative during school hours. The reason was identified at the midpoint of late sleep in the evening population. In the predisposition to learning, variables such as conscientiousness and agreeableness are also included (Arbabi et al., 2015; Gorgol et al., 2020).

The evening group is a population at risk insofar as Sun et al. (2021) recently identified behavioural problems in the classroom because of sleep deficits and evening habits. Moreover, this trend or correlation is seen from the first years of school, as Kobayashi et al. (2015) found that the first years of preschool had groups of students with disruptive problems due to the morning type and the number of hours of sleep. In contrast, when age and sex covariates are controlled, the modification of this correlation and the predictive trend can benefit the evening type and not so much the morning one (Gorgol et al., 2020).

In short, the literature points to an almost solid relationship between the evening chronotype, lower academic and professional performance and lower

sleep quality (shorter periods of sleep, drowsiness, irritability, abrupt change in sleep habits).

The child population, especially of school age, is the least studied, especially regarding the behaviour in the classroom variable. Thus, this study aims to analyse the significance of the chronotype (considering the synchrony effect) of children aged 6–10 years in the relationship between the day type (morning/evening), academic performance and classroom behaviour. Our assumption is based on the principle that children who are healthy (non-clinical samples) in terms of sleep will present differences in performance and discipline in the classroom depending on their chronotype. The time of day will determine performance, variation in attention and psychomotor balance, the latter being related to stable behaviour in the classroom.

Along with the evidence that attests to the correlation between sleep, individual performance, and classroom behaviour, there is a variability to be considered for careful examination, specifically regarding the eveningness, the school schedules and the children's behaviours events. The evening type is negatively correlated with positive behaviours in the classroom when they are identified by teachers and psychologists. Thus, it is important to explore the correlation between sleep habits, eveningness, and disruptive behaviours that may occur in the classroom. The main objective of this study is to prove the causal relationship between eveningness and psychomotor agitation and disruptive behaviour in the classroom.

Methodology

Participants

One hundred and forty children with a mean age of 8 years old, 53 (37.9%) boys and 87 (62.1%) girls participated. After the data collection, we denoted that the chronotype questionnaire was mostly answered by the female parent (N = 116), who knows the daily sleep routine of the child well. Forty-four children attended the 3rd grade (31.9%), 42 were in 1st grade (13.8%), 33 children were in the 2nd grade (23.9%), and 19 were in the 4th grade (13.8%). All the schools are located in Lisbon, Portugal. The parents' level of education was informed through a sociodemographic questionnaire. More details appear in Table 1.

Table 1

Sociodemographic Characterisation of Children (N = 140)

		N	%
Children's age	6–7 years	38	28.8
	8–11 years	94	71.2
	Total	132	100.0
Gender	Female	87	62.1
	Male	53	37.9
	Total	140	100.0
School grade	1st grade	42	30.4
	2nd grade	33	23.9
	3rd grade	44	31.9
	4th grade	19	13.8
	Total	138	100.0
Single child	Yes	41	30.1
	No	95	69.9
	Total	136	100.0
If not (other)	0	7	7.6
	1	33	35.9
	2	44	47.8
	4	8	8.7
	Total	92	100.0
Number of children in the household	1	42	41.6
	2	44	43.6
	3	12	11.9
	5	2	2.0
	6	1	1.0
	Total	101	100.0
Number of teenagers in the household	0	1	2.3
	1	26	60.5
	2	15	34.9
	4	1	2.3
	Total	43	100.0
Same biological parents	Yes	66	61.1
	No	42	38.9
	Total	108	100.0

Instruments

The Children's Chronotype Questionnaire (CCTQ), specifically the Portuguese version of CCTQ adapted and validated by Couto et al. (2014), was used as the first instrument in this study, based on the original of Werner et al. (2009). Attending to the objective of the present study, the collected data and the running statistical analyses were specifically based on the scale of Morningness/Eveningness (M/E), one of the scales of CCTQ and in the chronotype scale composed of one item (parents should classify the sleep schedules and habits of their children).

The M/E scale (0.711) evaluates the sleep habits and preferences of the child regarding sleep and awake times. There is a cut-off point determined for the three chronotypes: morning, intermediate, and evening types. The cut-off points are informed in the literature as follows: 10 (extreme morningness) and 49 (extreme eveningness). In the Portuguese version of CCTQ: <23 (morning-type), 24–32 (intermediate-type), >33 (evening-type). The chronotype was calculated by computing the 10 items and controlling for two age ranges (4–7 years old; 8–11 yr).

Child behaviour assessment – the Portuguese version (Rodrigues, 2005) of the Conners Teacher Rating Scale was used in its reduced version of the Revised Conners Teacher Rating Scale (Conners, 1997). Teachers were required to answer 28 items concerning different behavioural characteristics on a Likert-type scale (0 to 3), where 0 corresponds to 'Never' and 3 to 'Very frequent'. The total compute indicates the frequency of negative behaviours. This instrument presents a four-factorial scale, and three scales were selected for this study: opposition problems (items 5, 15, and 23), inattention (1, 4, 8, 13, 14, 16, 19, 22, and 25), and motor activity problems (2, 9, 12, and 17).

Research Design

This study adopted an observational, statistical, comparative, and cross-sectional method. Firstly, in March 2021, the project was submitted and approved by the Ethics Committee of the Psychology Research Centre (CIP) of Universidade Autónoma de Lisboa; then, it was submitted and obtained the consent of the Directorate-General for Education (DGE), Ministry of Education and Science, in Portugal. The research project and procedures were approved by the National Data Protection Commission and by the Ethics Committee of Universidade Autónoma de Lisboa.

The sample was identified considering the grades and ages that met the criteria for the study. Secondly, the schools, teachers, and families were informed about the study and the main objective (consent was ensured by writing from both parents and teachers). The third step was the administration of

the two instruments in different sessions scheduled at schools and with families (two different moments according to the different instruments).

The sessions occurred between March and April 2021. First, the CCTQ was answered by parents to identify the chronotype of each child. Only after the chronotypes were identified were we able to follow the next phase: the Conners Scale (Rodrigues, 2005), which was delivered in each school and supervised by teachers in class. This second phase took two weeks.

The principles of the Helsinki Declaration and its later amendments or comparable ethical standards were respected. The processing and statistical analysis were performed with SPSS, version 27.

Results

First, after the examination of the internal consistency for both scales, percentile analyses and multivariate analysis of variance were completed to determine the chronotypes and their influence on classroom behaviours. Additionally, normality tests were conducted to define the inferential methods of testing. Thus, when the normal distribution of samples was not respected, the Mann-Whitney U test accounted for the differences between the groups toward sleep habits and disruptive (if observed) behaviours.

Part 1

The internal consistency of the first instrument (CCTQ) was satisfactory (0.62) but lower in comparison to Cronbach's alpha of the original version (0.81). The values for the correlation matrix were above .30.

To determine the chronotype of each child/adolescent, the percentile analyses and cut-off scores were completed as the statistical norm of the original version (Werner et al., 2009). Thus, percentiles informed each cut-off for the three chronotypes. The percentiles range is between 23 and 43 points (the cut-off was established by the first authors as described in the Instruments Section). After the score achieved in the M/E scale (by computation), considering the two age groups (4–7 years old/8–11 years old), the data revealed interesting differences between the two groups. Half of the students (47.8%) were classified as intermediate, 27.8% were morning type, and 24.3% were evening type. In the Portuguese sample, we observed changes in the chronotype as we commonly know it, with the children being more evening oriented than expected (the percentile 75 is higher than verified in previous studies that replicated the CCTQ in several countries). We are comparing only morning and evening types. Young

School populations reveal a tendency to a late phase in sleep habits, which determines the evening chronotype. This indicates the greater importance of behaviour changes in younger students than expected. Rapid sleep changes will impact behaviour in the classroom. Considering these facts, teachers and school psychologists should be aware of the school schedules when assigned to a specific range of ages (of students). See Tables 2–4.

Table 2

Morning / Evening Scale Score for Group 4–7 years of age

N	**Valid**	47
	Missing	12
Median		29.09
Std. Deviation		4.84
Skewness		.43
Kurtosis		.55
Std. Error of Skewness		.35
Minimum		20
Maximum		43
Percentiles	10	23.00
	25	27.00
	75	33.00
	90	36.00

Table 3

Morning / Evening Scale Score for Group 8–11 years of age

N	**Valid**	63
	Missing	10
Median		28.00
Std. Deviation		4.84
Skewness		.58
Kurtosis		.23
Std. Error of Kurtosis		.59
Minimum		20
Maximum		42
Percentiles	10	23.00
	25	26.00
	75	31.00
	90	35.60

Table 4
Sample characterisation according to Chronotype

		Frequency	%	% Valid	% Cumulative
Valid	Morning	32	22.9	27.8	27.8
	Intermediate	55	39.3	47.8	75.7
	Evening	28	20.0	24.3	100.0
	Total	115	82.1	100.0	
Missing		25	17.9		
Total		140	100.0		

The results regarding the classification as presented by parents are concerning. Parents or tutors were unable to identify with precision their children's sleep timetables and habits. Moreover, concerning the Q27 scale (chronotype from the perspective of the tutor or parent), 80 tutors informed that children had an evening tendency. There was a mismatch when we compared the percentile punctuations and the results from Q27 (question referring to the type "nocturnal, diurnal"). It should be noted that Q27 is only a one-item scale, and intentionally, the terminology morning/evening and intermediate type was not used. Similar words (such as 'nocturnal') were used. Parents and tutors might need an intervention policy at schools in order to understand how school and home schedules are matching or generating blocking behaviours. More details about the results are in Table 5.

Table 5
Results of the use of the Chronotype Scale

	N	%
Without a doubt of the morning type	17	13.4
More morning than evening	19	15.0
Neither morning nor evening	40	31.5
More evening than morning	20	15.7
Without a doubt of the evening type	20	15.7
Don't know	11	8.7
Total	**127**	**100.0**

Part 2

The Conners subscales (for teachers) presented a high internal consistency (Cronbach's alpha: ≥0.80) despite the higher validity of the original version (≥0.90, Conners, 1998). The frequency of maladaptive behaviours (i.e., agitation and inattention) was evaluated in this way: '0-Never', '1-A Little', '2-Often', and '3-Very Often'. The constructs and items considered were the following: opposition behaviour (items 5, 15, and 23); inattention (items 1, 4, 8, 13, 14, 16, 19, 22, and 25); psychomotor agitation (items 2, 9, 12, and 17).

The internal consistency of this second instrument was tested for the three subscales: opposition behaviour (0.84), inattention (0.93), and psychomotor agitation (0.92). The correlation matrix proved that each subscale was measuring the respective construct with coefficients above $r > .595$ for all scales. The inter-item correlation was moderate to strong.

Part 3

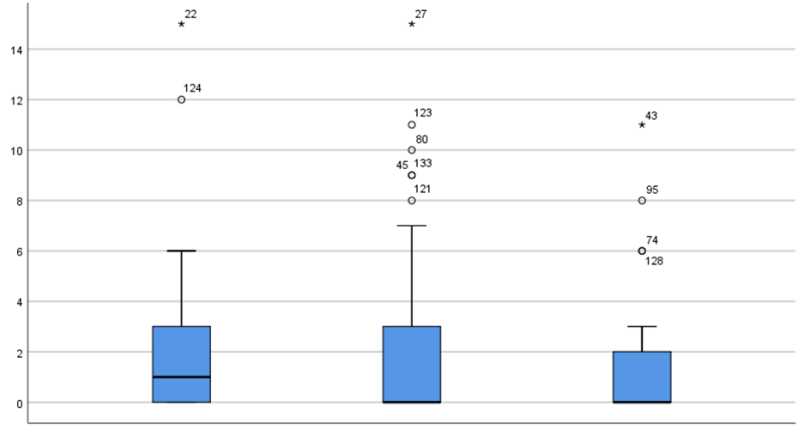
Hypotheses

Hypothesis 1 – Differences are expected between morning, intermediate, and evening children concerning disruptive classroom behaviour, with prejudice for evening subjects.

When we refer to disruptive classroom behaviour, three constructs are being tested here: opposition (indiscipline in the form of a negative response to teachers' demands and/or negative relationship with peers), inattention, and psychomotor agitation (excessive physical movements). Inattention is not associated with hyperactivity disorder. The sample was revealed to respect the conditions of homogeneity of variance and normality distribution (Levene: $p > .05$). Based on this assumption, a multivariate analysis of variance was carried out. The results showed differences in a significant manner between chronotypes (morning, intermediate, and evening): $F(2.110) = 3.156$ $p < .05$, $\eta 2 = .054$. The differences were identified specifically between morning and intermediate chronotypes with a bias for the morning chronotype. Morning-type children ($M = 3.15$) confirmed more oppositional behaviours in the classroom, while evening and intermediate types were shown to have similar behaviours ($M = 1.91$ for intermediate and $M = 1.70$ for the evening).

Figure 1

Stem and leaf analysis: chronotypes and oppositional behaviours*



Note. Morning, intermediate and evening types distributed in Y axis according to the oppositional behaviours in the X-axis (punctuations from the scale Oppositional Behaviour).

To ensure the results displayed by the multivariate analysis, we decided to explore covariates in the model of variance by using the regression parameters homogeneity test. The controlled covariates were gender and age. The level of *p* did not change for the effect produced by the chronotype variable in the interaction model.

Hypothesis 2 – Academic achievement is expected to be differentiated according to the chronotype.

When we refer to academic achievement, we used the information provided by the schools in this manner: 2 ('insufficient'); 3 ('sufficient'); 4 ('Good'); 5 ('Very good'); (-) ('Does not attend and/or others'). In the first and second semesters, morning and evening children showed very similar grades in the Portuguese subject (semester 1: morning: 3.45 – evening: 3.48; semester 2: morning type with mean grade 3.57 – sufficient; evening children with 3.63 – Sufficient tending to Good). Similarities were also observed in the academic achievement means for mathematics, but the evening chronotype children showed slightly better results for this subject. The absence of significant differences was confirmed with the multivariate analysis of variance, also when covariates such as gender and parents' age were introduced.

Hypothesis 3 – Inattention behaviours and psychomotor agitation are more expected in the evening chronotype compared to morning children.

Psychomotor agitation refers to excessive motor movements and inappropriate behaviour; this is correlated to low levels of concentration. The regression parameters homogeneity test showed an interaction effect that confirmed the relationship between chronotype, gender, and psychomotor agitation. For inattention, the conditions of variance were not seen to advance with the parameters' homogeneity test. Regarding the chronotype, gender had a significant moderate effect on excessive motor behaviour ($F(1.71) = 8.492$, $p = .005$; $\eta 2 = 1.07$). Morning children were the most agitated compared to intermediate and evening types. For inattention, no differences were observed among the different chronotypes. The age of the children did not reveal a moderate effect in this equation.

Hypothesis 4 – The chronotype is expected to have different impacts on oppositional behaviour depending on age.

The results of one univariate analysis of variance demonstrated that age did not influence oppositional behaviours. Differently, when the regression parameters test was conducted, the covariate related to the academic qualifications of parents revealed the effect of children's age and chronotype ($F(1,11) = 32.323$ $p = .000$; $\eta 2 = .0746$). After the introduction of the covariates gender, educational level of parents, and extracurricular activities of children, the parents' skills were the only producing effect for age (and chronotype) in oppositional behaviours. Through a chi-square test, data indicated that parents with higher educational levels had children more identified in the chronotype 'morningness'. Also, the chi-square showed that older children (10 years old) are mostly morning type, and females tend to have more morning tendency when compared to males. Details are found in Table 6.

Table 6
Relationship between Chronotype, Age, and Gender

		Morning type		Intermediate type		Evening type	
		N	%	N	%	N	%
Gender	Female	16	22.5	39	54.9	16	22.5
	Male	16	36.4	16	36.4	12	27.3
Age	5	0	0	1	100	0	0
	6	7	30.4	14	60.9	2	8.7
	7	4	17.4	8	34.8	11	47.8
	8	7	25.9	14	51.9	6	22.2
	9	7	26.9	15	57.7	4	15.4
	10	7	77.8	1	11.1	1	11.1
	11	0	0	0	0	1	100

In conclusion, morning children have more oppositional behaviours in the classroom, and they are older; academic achievement did not suffer from the influence of chronotype in both semesters; morning children presented as being more agitated and excessive in movements when controlled for gender variables; inattention was not observed with significant differences within groups; parental education has an influence on oppositional behaviours when age is entered as a covariate in the interaction model with chronotype. Along with the testing procedure, covariates and interaction models were important in identifying the effect of chronotype for the two constructs: opposition and agitation. Impulsivity (agitation) is seriously affected by chronotype when controlled for age.

Discussion

When considering the results obtained and the four hypotheses of this empirical study, it is seen that the reliability of the instruments used was positive, with a better Cronbach index for Conner's scale. The first highlight is the fact that morning children were the group with more disruptive behaviours, specifically regarding opposition and psychomotor agitation. The second highlight is identified in the chronotypes evaluated: Portuguese children were mostly intermediate and evening types. Thirdly, gender was more influential than the chronotype effect in the disruptive behaviours in the classroom. Age only showed an effect on the educational level of parents when referring to the chronotype impact on impulsivity in the classroom.

This study showed evidence that enhances new insights into the traditional statement about young children with the morning chronotype. Against that traditional evidence, we also should add the observation that females were more evening than morning type. Sleep habits and behaviours are more negative for the evening chronotype, which will have consequences for the behaviour of young children (i.e., from 1st to 4th grades) in school (Kim et al., 2002). The contribution of this study supports the understanding of regulation in childhood development and how sleep patterns may affect school behaviour in the age group of 4–11 years old.

The cut-off points observed after the percentile analyses indicated that the new generation of children in the first grades of school is changing with regard to sleep behaviour. This refers to wake-up and bedtime schedules that are becoming different. Young children tend to be more evening chronotype than in the morning, as expected. Later times of sleeping and wakefulness are different, which may explain more agitated behaviour in classrooms. The acrophases (optimal periods to learn and to be evaluated concerning academic performance) will also change when the sleep hours become later (Lara et al., 2014; Dorrian et al., 2017; Hahn et al., 2012). The synchrony effect could be disrupted with prejudice for mood and academic balance (Goldstein et al., 2007; Hahn et al., 2012; Kolomeichuk et al., 2016).

Regarding Hypothesis 1, differences between chronotypes confirmed the impact on oppositional behaviour. Morning chronotypes were more disruptive in the classroom, specifically for the construct of oppositional behaviour. Morningness presented fewer less positive behaviours that, normally, were attributed to eveningness (indiscipline or negative response to teacher demand, easy irritability related to high cortisol levels; Martínez-Lozano, 2020). Sleep deprivation, associated with eveningness, causes disruptive behaviours in several settings and social jetlag. The latter is profoundly associated with poor relationships with peers at school. If young children in our study present characteristics of intermediate and evening types, social jetlag will be a problem. This evidence is not supported by recent studies by Jafar et al. (2017), Kivela et al. (2018) and Martínez-Lozano (2020) that found oppositional problems in young children with the evening chronotype.

We believe that the main argument in this conflict of evidence is the poor examination of the chronotype of children. The instruments used are not quite reliable, and parents (the respondents of the children's chronotype questionnaire) do not seem to have knowledge about chronotype, sleep patterns, and the importance of identifying them to regulate the synchrony of their children with the school schedules. Very scarce literature is found regarding the

examination of children's chronotype and its impact on classroom behaviour in different countries and populations. To summarise, Hypothesis 1 was confirmed, but with prejudice for morning children.

In regard to Hypothesis 2, it was rejected. No differences were observed when comparing morning and evening children for academic achievement. These data are in line with those of Roeser et al. (2013) and Randler et al. (2016) because the chronotype was not directly related to the children's academic achievement.

As for Hypothesis 3, it was not confirmed. Eveningness was not correlated to high levels of inattention and agitation. The morning chronotype was associated with those behaviours, which is new evidence for investigation in the educational policies and psychology of sleep. The evidence of Kang et al. (2015) is no longer supported when evening children are constantly associated with negative behaviours and offences in a classroom setting. Evening children are commonly related to poor mental health, and this scenario is not necessarily supported by the current data (Fabian et al., 2016). Regarding current scenarios, we should consider that these instruments were administered during the Covid-19 pandemic in Portugal. At that time, children and families remained at home and in isolation, which required school classes and working to be online (Figueiredo et al., 2022). The transition from and to in-person/online classrooms between waves of Covid-19 had serious implications. These implications were met immediately, for example, in sleep changes of children, including later hours of bedtime, later schedules of being awake and disruptive schedules. Morning and evening types are not the same as had been known. Examination of the chronotype during and after Covid-19 implies new evidence and educational and psychological support in the current global situation (Pickren et al., 2022; Türkoğlu et al., 2020).

Hypothesis 4 was partially confirmed. Age only has a significant effect as a covariate in the interaction model, including the chronotype and parents' educational level. This evidence is congruent with recent studies (Karan et al., 2021; Haldar et al., 2021) that attested to the academic skills of the parents as a determinant for the chronotype variance of children. According to Haldar et al. (2021), evening-type children come from families with high levels of academic qualifications, which impacts the sleep hygiene of children. On the contrary, in the present study, evening children have parents with high qualifications. This contradiction between studies may be due to the Covid-19 outbreak and the sleep changes in families during lockdowns. Further studies should examine this variable for the children's chronotype and respective sleep habits (Sládek et al., 2020). The current context is a main covariate to be taken into account. In contrast, other studies

focused on the chronotype of adolescents and not children, with default for examining the covariates' influence on sleep and classroom behaviour (Druiver et al., 2021). Contextual factors such as the Covid-19 outbreak and the current war conflict affecting different populations and continents affect sleep and children's behaviours at school. The age variable was the main predictor as addressed by previous investigations and by the main authors in the field of chronotype identification (Werner et al., 2009). However, in our study, age was not so predictive; other factors, as mentioned, emerged to explain the results for oppositional and agitation in children in the first grades of school.

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The Families of Special Needs Children from the Perspective of Vulnerability

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Difficult life circumstances can make anyone vulnerable. For example, families of children with special needs are at risk, as are families facing other stressful circumstances, such as poverty or parental mental illness. This article builds on previous action research by Plavčak (2020) and introduces a new research problem. We conducted a qualitative analysis of action diary data to answer two new research questions: 1) In what forms did vulnerability appear in students' families, and 2) What approaches did professionals use to reduce perceived vulnerability? Our findings suggest that families of children with special needs should be approached with sensitivity, flexibility, and balanced interventions. It is important to understand families in the context of their lives, including the emotional stages of caring for a child with special needs and other difficult circumstances they may face. Interventions should be tailored to the specific needs of families and developed collaboratively with them.

Keywords: vulnerability reduction approaches, families with children with special needs, vulnerability

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Družine z otroki s posebnimi potrebami z vidika ranljivosti

Darja Plavčak

Ranljivost se lahko razvije pri vsakem posamezniku zaradi težkih življenjskih okoliščin. Dejavniki tveganja za nastanek ranljivosti so tako v družinah z otroki s posebnimi potrebami kot tudi v družinah z drugimi stresnimi razmerami, kot so revščina ali duševne bolezni staršev.
V članku je predstavljen nov raziskovalni problem, ki se nanaša na že izvedeno akcijsko raziskavo (Plavčak, 2020). S kvalitativno analizo podatkov iz akcijskega dnevnika smo odgovorili na novi dve raziskovalni vprašanji: (1) v katerih oblikah se je pri družinah z učenci s posebnimi potrebami pojavljala ranljivost in (2) katere pristope smo strokovni delavci uporabili, da bi zmanjšali zaznano ranljivost. Rezultati kažejo, da je treba do družin z otroki s posebnimi potrebami pristopiti z občutkom, prožnostjo in uravnoteženostjo intervencij. Družine je treba razumeti v njihovem življenjskem kontekstu, upoštevaje faze čustvovanja pri skrbi za otroka s posebnimi potrebami in morebitne druge težke okoliščine. Intervencije naj bodo usmerjene v projekte pomoči, ki izhajajo iz konkretnih potreb družin, in naj nastajajo v sodelovanju z njimi.

Ključne besede: pristopi za zmanjšanje ranljivosti, družine z otroki s posebnimi potrebami, ranljivost

Introduction

The literature review examines the concept of vulnerability, explores various forms of it in families with children with special needs (SN), and discusses practitioner approaches to addressing vulnerability. The introduction concludes by presenting the research problem and associated research questions.

Literature overview

The concept of vulnerability

Feetham and Deatrick (2002) note that the definition of vulnerability is shaped by factors such as family, culture, and society and that populations at risk can include minorities, immigrants, refugees, women, and families living in poverty. Knitzer and Lefkowitz (2006) add that vulnerability is caused by a combination of risk factors that may be present in the child, in the family, or in the environment. One example of a risk factor could be a life circumstance such as single parenthood or teenage parenting or an individual's lack of employment or education. There is also a risk of vulnerability when parents are unable to provide adequately for their children for a variety of reasons (e.g., depression, inconsistent parenting, violence, and substance abuse). Teixeira de Melo and Alarcão (2011) agree that any difficult circumstance can be a risk factor for vulnerability.

According to Featham and Deatrick (2002), vulnerability refers to the increased likelihood that an individual will experience negative psychological, physical, social, or developmental outcomes when exposed to the aforementioned risk factors.

At certain points in life, everyone is vulnerable when dealing with stressful circumstances, but the previously described life situations and/or characteristics of the individual's biopsychosocial state indicate less opportunity and strength for positive outcomes, especially if the individual experiences more of them at the same time.

Families with SN children are some of the many families who face several challenges (Teixeira de Melo and Alarcão, 2011), also referred to as stresses (Madsen, 2007) or problems (Walsh, 2016). Taking care of SN children has changed their lives, as they have had to adapt many of their daily tasks to the new situation. Other families also face life-changing events, stresses, and problems.

Some researchers have questioned the term 'vulnerability', arguing that it may be overly broad and neglect important individual differences among families and the rights of the child, as suggested by Bauer and Wiezorek (2016). Specifically, it emphasises weaknesses, discomfort, and possible negative outcomes

while leaving in the background possible sources of strength in the family, the environment, or at the systemic level.

Therefore, each family needs to be understood and approached in an individualised way.

Some possible forms of vulnerability experienced by families with SN children

Some of the specificities of these families are due to the special needs of the child, such as emotional phases, but there may be other circumstances that contribute to vulnerability as well, such as mental health problems in the parents or placement in a foster family.

Trtnik (2007) summarises the emotional stages that families with SN children typically experience: 1) shock, 2) denial, 3) a crisis of values during which parents process feelings of guilt and fear while seeking as much information as possible to understand their child's special needs, and 4) a crisis period during which parents focus on therapies and corrections for the child and learn about the child's actual capabilities. This period may also include the institutionalisation of the SN child, leading to separation from the parents. Gantar (2009) conducted non-standardised interviews with eleven parents (ten mothers and one father) of SN children enrolled in a mainstream primary school. She also analysed data from the Decision on Additional Professional Assistance for the SN Child, which in Slovenia includes a definition of the child's deficits, obstacles, or disorders, as well as the number and type of additional professional help and adjustments to teaching. After qualitatively analysing all of this data, she found that parents had bad experiences with the accuracy and commitment of practitioners, but they continued to look for ways to improve their child's condition. They were willing to sacrifice their free time to ensure their child could finish their education, among other things. Sagadin (2013) found that parents who have children with behavioural problems experience additional stress.

Lochs (2016) conducted a study in Austria and Germany on a sample of parents with mental illness. The sample consisted of parents with children under six years of age (not defined as SN children) at the time of mental health problems. She was interested in how this affected their children. The results showed that parents were unable to provide their children with sufficient educational guidelines, guidance, and emotional support from an early age, which led to problems in their children's social and mental development and, in some cases, alcohol dependence. The article addresses the social aspects (organisational, professional, personal, familial, legal, political, and sociopolitical factors) of the emergence of children's problems. Regardless of the origin of the

problems, these families require appropriate professional support for their unique circumstances. 'This need for supported parenting applies to all parents interested in their children's wellbeing, even if the children are in out-of-home care' (Lochs, 2016, p. 101). The need for professional parenting support was perceived in all phases of the child's development, both in early childhood and in the growing-up period, namely in understanding the child's development process and dealing with their own fear of loss.

Lena (2016) analysed families with multiple risk factors, such as an absent father or a two-track upbringing, which made them vulnerable. The results showed that these families often functioned as closed systems, with inconsistent parenting and aggressive behaviour in the children. Aid institutions intervened to support the process, but families were not sufficiently involved in defining the problems and finding solutions. The research suggests that there is a need for a collaborative process of problem definition and solution-finding.

In some families with SN children, siblings may take on the parental role, which can be difficult or a new challenge and source of encouragement. Strohm (2002) was the sibling of a sister with cerebral palsy. She explained that siblings are often placed in distressing situations that affect their self-image, self-esteem, and mental and emotional domains in adulthood. They often feel isolated, different from their peers, lacking attention in the family, having a duty to help their parents, and similar. There are also siblings who have become more resilient in the face of life's challenges because of the SN child in the family. Siblings of SN children must have sufficient opportunities for support in all areas, including the home, school, peer groups, and special support groups for siblings of SN children. They should also be involved in information and decision-making about their SN siblings.

Practitioners' approaches to vulnerable families of SN children

By *practitioners*, we refer to all professionals who support families of children with special needs in a specific setting, such as social workers or social pedagogues.

Kodele and Mešl (2016) are of the opinion that working with families with multiple challenges brings risk and uncertainty, which can be overcome by creating opportunities to co-create new outcomes. In contrast, Starčević et al. (2016) argue that it is necessary to act as engaged as possible, striving to be sensitive to the specifics of individuals.

Bauer and Wiezorek (2016) analysed how a social worker approached a family in which the mother was in distress because she was unable to care for her child properly. They found that the mother's vulnerability increased rather

than decreased with the social worker's intervention. From this, they gave guidance that the approach to the parents should be adapted to find their areas of strength. A positive attitude can be used to show them the way forward and to accompany and support them in this. They stressed that practitioners should understand and mitigate the vulnerability of such families by urgently changing their approach toward greater sensitivity.

Restoux (2010) provides guidance that families can draw new strength from 1) having enough information and knowledge, 2) finding ways to express their fears, 3) being listened to, understood, and supported by relatives in overcoming their pain, and 4) being able to seek help, for example from a psychologist or a psychotherapist, when the burden of stress and exhaustion is more pronounced.

Knitzer and Lefkowitz (2006) summarised the approaches to possible forms of family vulnerability into four pillars. These guidelines for practitioners derive the following: 1) promote healthy and effective parental reactions to complex risk factors, 2) implement interventions that explicitly address parental risk factors, 3) establish a network of needed services for SN children, and 4) address the specific needs of families. As necessary strategies, they list:

- ensuring that families with lower socio-economic status are included in support projects that improve the chances of healthy development of the SN children,
- providing intensive interventions to help and support the family as early as possible,
- monitoring the mental state of mothers and young children in order to intervene as early as possible in the case of possible depression in the mother,
- involving the whole family in support and assistance projects,
- developing local community-based approaches,
- setting up schools for parents and/or groups providing information for families, etc.

Resilience is a modern concept that can be used to prevent or intervene in families facing serious life challenges. According to Kiswarday (2013), it involves the ability to adapt and be flexible in the face of adversity. Walsh (2008) suggests that the concept of resilience can be especially useful for families with SN children, as it allows them to gather more strength during difficult times and respond with courage, resilience, and a solution-seeking attitude. In addition, Maddi (2002) found that an individual's belief in their ability to influence, control, and be deeply involved in life events, as well as seeing change as a challenge that contributes to further development, can enhance their capacity for

resilience and flexibility. Therefore, life resilience and flexibility are essential for families with SN children to adapt quickly and easily to changes.

Razpotnik et al. (2017) researched and implemented assistance for vulnerable groups. In their case, they implemented housing loss prevention activities within the framework of the Association for Help and Self-Help of the Homeless, the so-called Kings of the Street Association. From their work, we can see an important principle of focusing on sources of strength and seeking an optimal balance between structure and flexibility of support, which can be transferred to families with SN children. From their research, two recommendations are derived: 1) aid and support organisations should be more coordinated and integrated with each other, and 2) they should be focused on the families' livelihoods. Razpotnik et al. (2017) have, among other things, designed family support so that volunteers enter the family field in a sensitive way and thus come closer to understanding the family's needs and making positive changes. Their guidelines are important in terms of finding practitioner balance and making judgments on how not to break trust with families and find appropriate forms of support for them. Equally important is their experience that families have shared important information (e.g., where to buy cheap clothes) by meeting each other over coffee. In the field of special needs, this can be done similarly by creating spaces and opportunities for people to come together and share information on current issues related to SN children.

Research problem and research questions

The research problem in this study is to explore how the forms of the vulnerability of families with SN students in the research sample influenced the reactions of practitioner workers as they pursued the primary aim of action research (AR) to promote the social skills of students with SN.

The research questions that emerged from the study are:

1. In what forms did vulnerability appear in students' families?
   This question aims to identify the different forms of vulnerability that families with SN students experienced in the context of the study. This could include economic vulnerability, social isolation, a lack of support, etc.
2. What approaches did practitioners use to reduce perceived vulnerability?
   This question explores the strategies practitioners use to address the forms of vulnerability identified in the first research question. The goal is to identify effective approaches to reducing perceived vulnerability.

Methods

Participants

The AR (Plavčak, 2020) included 12 students with special needs, namely, a mild intellectual disability with associated problems (e.g., emotional and behavioural problems, attention deficit disorder). They attended an adapted educational programme with a lower educational standard, from 1st to 5th grade.

In the new research problem presented here, we included the families of these students in the sample (i.e., 12 families). Most of them lived in difficult life circumstances, such as poverty, unemployment, and with health problems. In addition to families, the sample also included professional workers who most often taught the students, mostly the class teachers of these students, other teachers, and a counsellor (i.e., seven professionals).

At the time of the action research, the author of this article was in the role of consultant and implementer of activities to promote students' social skills. Currently, as a researcher, she reanalyses the data from the action research diary and updates it with new results.

Instruments

The basic material of the analysis was the action diary of the AR (Plavčak, 2020). In addition, it included approaches to promote students' social skills (e.g., counselling conversations, art-based help approaches), monitoring the progress of students' social competences, and the cooperation of parents and professionals.

For a new research problem, we added new instruments: Analysis Table 1: evidence of the occurrence of forms of vulnerability in students' families, and Analysis Table 2: reactions of professionals to the vulnerability of students' families. Both analyses were made based on data from the beforementioned action diary.

Research design

The AR (Plavčak, 2020) was carried out in the school year 2013/14, and an action diary was established.

For the new research problem, two qualitative analyses of the action research diary were conducted: 1) a qualitative analysis of the characteristics of students' families (attention to possible forms of vulnerability) and 2) a qualitative analysis of the cooperation between professionals and parents (attention to professionals' responses to perceived vulnerability).

In the first qualitative analysis, Table 1 was formed, in which specific forms of vulnerability in students' families were identified. From the data, the

percentages of the occurrence of a specific form of vulnerability were calculated, as well as the minimum, maximum, and average number of forms of vulnerability per student.

The second qualitative analysis recorded professionals' responses to perceived vulnerabilities in Table 2. The results were then interpreted as suitable approaches to addressing various forms of vulnerability in the families of students with SN.

Results

First, we present the main result of the AR (Plavčak, 2020) as the foundational framework for subsequent analyses: nine out of 12 students demonstrated at least minimal progress in their social development.

As a novel qualitative analysis, we first provide Table 1, which addresses the following question: In what forms did vulnerability appear in students' families?

Table 1

Incidence of forms of vulnerability in students' families

Forms of vulnerability	Students:											
	1	2	3	4	5	6	7	8	9	10	11	12
At least one parent is unemployed.	x	x	x		x	x	x		x		x	x
The family lives in difficult socioeconomic conditions.	x	x	x		x	x	x		x		x	x
One or both parents have mental health problems.	x	x	x		x	x	x		x		x	x
One or both parents are not sufficiently involved in the child's upbringing.		x		x	x	x		x	x	x	x	x
Parents express helplessness in understanding or educating the SN child.		x		x	x	x			x	x		x
There are three or more children in the family where the SN child lives.	x				x					x	x	x
Parents find it challenging to respond to the school's invitations.		x							x	x		x
The SN child is in a foster family.					x	x						
One or both parents are of foreign origin.					x							
The child's education is inconsistent.				x								
There is violence in the family.												
Siblings of an SN child are burdened.												

Legend:

- 1=Student 1, 2=Student 2, etc. (for data protection reasons, the names of the students are hidden).
- An 'X' indicates that the type of vulnerability indicated is present in the student's family. Where there is no 'X', the vulnerability is not present in the family.

The following percentages of vulnerability occur in the families of the students in the research sample:

- 75.00% of the families face unemployment and live in difficult socio-economic conditions;
- 75.00% of the families have at least one parent with a mental health problem;
- In 75.00% of the families, at least one of the parents is not sufficiently involved in the upbringing of the child;
- 50.00% of the families express a lack of support in understanding or raising the SN children;
- 41.66% of the children live in families with three or more children;
- 33.33% of the parents needed several invitations and calls from the school to come for a talk;
- 16.66% of the families are foster families;
- 8.33% of the families have a parent of foreign origin;
- 8.33% of the families have an inconsistent education.

In none of the families was there any suspicion of violence among siblings or their being overburdened.

The results show that for most families in the research sample, the vulnerability was either the parents' unemployment or their mental or other problems. Half of the families expressed helplessness regarding understanding or educating the child. From the author's experience of implementing AR in these groups, she observed that vulnerability in terms of sensitivity and complexity of the situation was evident in most of the students' families, which made the social learning processes very difficult. As seen in Table 1, the students' families showed between one and eight forms of vulnerability, with an average of five forms of vulnerability per student. The result shows a pronounced incidence of vulnerability in the students' families involved in AR.

The second qualitative analysis answers the following question: What approaches did professionals use to reduce perceived vulnerability?

Table 2 shows how professionals responded to the perceived vulnerabilities of students' families. Due to the co-participation of the article's author among the professionals, the professionals' reactions in Table 2 are written in the 1st-person plural.

Table 2

Professionals' reactions to the perceived vulnerabilities of students' families

Forms of vulnerability	Professionals' reactions
One or both parents are unemployed.	Within the team, we discussed our observations about what the family need. Then, when opportunities arose to participate in projects or when volunteer associations and donors became involved in the school, we helped by making the family aware of possible forms of support. If the family agreed, we began the process of providing support.
The family lives in difficult socioeconomic conditions.	
One or both parents have mental health problems.	We talked to parents in a way that was understandable, clear, and sensitive. At all stages of help and support, we renewed agreements or checked that they were still valid. Sometimes, we arranged for two practitioners to speak with the parents simultaneously to present issues or solutions from different perspectives. Parents were asked for their opinions on the students' problems and difficulties. We talked to parents in a relaxed atmosphere and asked them about their well-being and work at home. In addition, we worked on building trusting relationships with them.
One or both parents are not sufficiently involved in the upbringing of the SN child.	Parents were invited to the school in various ways: by phone, in writing, and for more complex and persistent problems, together with the Social Work Centre. Families were involved in the school on various activity days (e.g., we organised a joint hike, a welcome party, etc.).
Parents express their helplessness in understanding and/or educating their SN child.	We advise parents in a sensitive way on a particular issue where they feel powerless (e.g., we advise them on how to be consistent in their parenting). We were careful not to interfere too much with the integrity of the family. We provided counselling at a pace that the family could manage and based on the currently available solutions.
There are three or more children in the family where an SN child lives.	Having more children in the family meant additional expenses for food, bills, and education. Problems were more intense when more children needed more educational or medical attention. Parents were counselled as much as possible on a concrete level, with concrete guidance and information, in a sensitive way (as described above).
Parents are invited to the school for an interview, but they only come after several invitations and phone calls.	Non-response is one of the most challenging forms of non-cooperation. Therefore, we documented all phone calls and sent invitations by post. In parallel, we reported to the Social Work Centre to intervene if the problems persisted.
The SN child is placed in a foster family.	In two cases where students were placed in foster care, the vulnerability was evident in the expectation of consequences for the child due to separation from parents or trauma inflicted by parents. Considering these assumptions, we stood by them and offered them help.
One or both parents are of foreign origin.	The child was in a foster family, and we did not meet her parents at school. However, she was talking to us about them. She showed significant vulnerability and a great deal of confusion. The team found that she did not have a model of appropriate behaviour. Based on this finding, we were able to understand her better and advised the foster parents to teach her basic life skills.
The child's education is inconsistent.	Inconsistent education was evident in one student. It may have been a case of permissive parenting, as the student was raised by her grandparents due to her mother's frequent absence. We advised the mother to be more consistent in her upbringing. We also talked to the grandparents.

The results show that professionals have a sensible approach to all forms of identified vulnerability in students' families. Sensibility is reflected in the following approaches:

- Parents were accepted as equal partners in helping and supporting students.
- Solutions were co-created with parents; we listened to their suggestions and worked together to find the most appropriate outcomes.
- We set up a respectful and relaxed atmosphere for our meetings with parents, allowing time and space for parents to say how they feel and what they need.
- The team's proposals were presented in an easily understandable manner and, where necessary, in tandem.
- We were creating trusting relationships with parents.
- Families were included in activity days (e.g., sports days).
- Parents were given specific advice based on their problems, taking into account their individual pace and the options available to them.

Discussion

This paper highlights vulnerability as an aspect from which new insights can be drawn from AR (Plavčak, 2020). Additional qualitative analysis suggests that the families in the research sample are vulnerable in many ways, mainly due to unemployment, psychological problems, and other disorders of the parents, but also due to their helplessness when it comes to understanding the child's difficulties and meeting educational demands. Since the aim of the AR (Plavčak, 2020) was to promote social skills, the role of parents was very important. Professionals were sensitive to any form of vulnerability so that they could still do their best to contribute to their children's social development. The sensitive approach embraced both a broader, inclusive climate (Lena, 2016) and a trusting, co-creative relationship with parents. We welcomed them as equal partners in the journey towards improving their children's social skills and looked at them holistically, taking into account their well-being, needs, desires, strengths, and similar factors. As Bauer and Wiezorek (2016) note, we adapted our approach, constantly looking for their strengths. We also encouraged them when it was most difficult, so they did not give up. We did not see families as vulnerable or weak. We were aware that families have many of the problems identified by Walsh (2016) and that challenges in their child's social development are just one of them. We responded with commitment (Starčević et al., 2016) by finding projects and donors to improve their material situation.

We did not forget the foster families either. In our sample, two students from foster families needed emotional support due to their different emotional and behavioural patterns. In these students, the strong influence of their biological parents, who were persons with mental health problems, was evident: these students lacked educational guidance, for example, how to communicate appropriately, how to solve problems, and how to manage conflicts.

In the AR (Plavčak, 2020), attention was also paid to the siblings of SN children in case they were overwhelmed with their care (Strohm, 2002), but this did not prove to be a problem for the families. The siblings did help the family, but their role did not go beyond their strengths. However, they did receive attention and were included in activity days (e.g., a joint hike) or other forms of cooperation with families in the school.

There was no suspicion of violence in the sample of families studied. Had this been the case, we would have responded appropriately according to the established protocol.

The included families with SN children did not exhibit sufficient resilience and resistance to psychological problems, as noted by Kiswarday (2013); in most cases, they surrendered to the flow of life and lost a sense of control over their lives. Many remained in a particular emotional phase due to SN children, such as the denial phase or the values crisis phase (Trtnik, 2007), and only a minority were committed to finding solutions (Gantar, 2009). Additional stress was caused by concerns about the child's behaviour, as Sagadin (2013) also found in her study.

As professionals, we provided the families sensitively with information and knowledge, listened to their fears, and, if necessary, advised them to consult a psychologist or psychotherapist, as Restoux (2010) suggested. In this way, we mitigated their vulnerability while promoting their resilience and resistance. In addition, we helped to strengthen the attitude that life events can be influenced (Maddi, 2002).

The forms of the vulnerability identified in families with SN children certainly influenced parents' responses, complicating the process of developing students' social skills in the sense that we professionals were largely responding to mitigate vulnerability rather than directly providing strategies to develop social skills. Nevertheless, the AR's good results show that 9 out of 12 students made progress in social skills, from which I conclude that our responses to vulnerability were effective, albeit indirectly, in influencing a positive result.

Conclusion

From the findings of AR (Plavčak, 2020) and the further evidence of the vulnerability of families with SN children and the way professionals respond to them, it is concluded that a sensitive and tailored approach to parents is the basis for achieving educational goals for students. In the case of the AR (Plavčak, 2020), the goal was to promote students' social development, but these findings can also be applied to other goals in the school setting.

Sensitivity requires training in listening, counselling, and carrying out activities with a high degree of empathy. The sources of help we find for families must be discussed with them to reach a consensus and agreement. The findings show that working as a team is very important in this process, as it makes observations of families more holistic and the help and support more varied. Ultimately, creating an inclusive, collaborative, and relaxed climate is a responsibility that involves the entire school community; therefore, it is wise to plan a sensitive approach at the strategic level of the school, not only towards parents but in all interactions (e.g., between professionals, between management and professionals, between students). A sensitive approach is all-encompassing as a general principle for all relationships.

For further research, it makes sense to examine more samples of families with SN children to determine what forms of vulnerability are present and what approaches professionals have used to mitigate them. The presented findings cannot be generalised, but further research in this field could provide a more comprehensive picture. New research in this field will, among other things, provide answers to the vulnerability due to the post-Covid-19 epidemic of the present time.

The paper provides guidance to professionals to be attentive to the needs and challenges faced by families with SN children. By identifying what families need and what burdens them, they will be able to adapt their approach accordingly. This means that they will demonstrate their sensibility by partnering with parents on an equal footing, collaborating on solutions, creating a relaxed and trusting climate, engaging in joint activities, allowing sufficient time for communication, and presenting ideas (or even materials) in an understandable way, among other ways. Professionals can reflect on whether their actions are increasing or decreasing the vulnerability of families and evaluate their approach as a team. Of course, it is essential to remember that help and support also depend on the parents' cooperative attitude and assertive posture. When this is not possible, and the problem-solving process does not work in the child's best interests, appropriate external institutions should be included in due time.

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Biographical note

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Self-Evaluation of Speech and Language Therapists on their Competence in Cooperation with Parents in Slovenia and North Macedonia

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Based on the analysis of the available literature, the competence of cooperation with parents can be defined as a construct of knowledge, skills, and attitudes that enables speech and language therapists to collaborate successfully with parents of children in therapy. This study aims to examine how speech and language therapists from Slovenia and North Macedonia assess their knowledge and skills necessary for cooperation with parents and what their attitudes are in general regarding the involvement of parents in speech and language therapy. For the purpose of the study, a questionnaire was developed to measure the competence of cooperation between speech and language therapists and parents in a sample of 110 speech and language therapists, including 62 speech and language therapists from Slovenia and 48 from North Macedonia. The results show that there were differences between Slovenian and North Macedonian speech and language therapists in self-assessed attitudes towards parental involvement but no differences in the domain of knowledge and skills. The interaction of country and years of work experience is significant for the knowledge domain. Attitudes about cooperation with parents are not affected by years of work experience, area of work, or additional professional training; only the country where the SLTs work has an impact. The competence of collaboration between speech and language therapists and parents varies between the two countries, but there is space for improvement in each domain. The findings of this study may provide a starting point for further research on the competence of cooperation between speech and language therapists and parents.

Keywords: cooperation with parents, professional characteristics, speech and language therapists, knowledge, skills, attitudes

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Samoocena logopedov o lastni usposobljenosti za sodelovanje s starši v Sloveniji in Severni Makedoniji

Jerneja Novšak Brce, Ingrid Žolgar in Damjana Kogovšek

Na podlagi analize dostopne literature lahko kompetenco sodelovanja s starši opredelimo kot konstrukt znanja, spretnosti in stališč, ki logopedom omogoča uspešno sodelovanje s starši otrok v terapiji. Namen te študije je ugotoviti, kako logopedi iz Slovenije in Severne Makedonije ocenjujejo svoje znanje in spretnosti, potrebne za sodelovanje s starši, ter kakšna so njihova splošna stališča do vključevanja staršev v logopedsko terapijo. Za namen študije je bil razvit vprašalnik za merjenje kompetenc sodelovanja med logopedi in starši na vzorcu 110 logopedov, od tega 62 logopedov iz Slovenije in 48 iz Severne Makedonije. Izsledki kažejo, da so med slovenskimi in severnomakedonskimi logopedi obstajale razlike v samoocenjenih stališčih do sodelovanja staršev, ni pa bilo razlik na področjih znanja in spretnosti. Interakcija države in števila let delovnih izkušenj je pomembna za področje znanja. Na stališča o sodelovanju s starši ne vpliva število let delovnih izkušenj, področje dela ali dodatno strokovno usposabljanje; vpliva le država, v kateri logopedi delajo. Usposobljenost za sodelovanje med logopedi in starši se med državama razlikuje, vendar so na vsakem področju še možnosti za izboljšave. Ugotovitve te študije so lahko izhodišče za nadaljnje raziskave o kompetenci sodelovanja med logopedi in starši.

Ključne besede: sodelovanje s starši, poklicne značilnosti, logopedi, znanje, spretnosti, stališča

Introduction

In speech and language therapy and other professional fields, relationships between professionals and parents and families have changed in content and form over the previous five decades (Hanna & Rodger, 2002; Watts Pappas & McLeod, 2009). Various models of professional attitudes toward parents have evolved and been added to practice as parents have been assigned an increasingly important role in planning a therapeutic intervention (Hanna & Rodger, 2002). Most authors (Buckley, 2003; Dale, 1996; Hornby, 2000, 2011; Watts Pappas & McLeod, 2009) define the relationship between parents and professionals using several models that fall under the compensatory approach in which parents play a secondary role, the transitional approach in which knowledge and skills are transferred to parents, and the cooperative approach with the interaction between parents and professionals.

As Thomas Rauschenbach et al. (2004) argue, the family is the first place where children are educated and the most important place in their early childhood; children's educational processes are shaped and influenced by the family (see Loch, 2016). Therefore, the active participation of parents in the treatment of their children brings a number of positive effects. In treatment and learning processes, speech and language therapists use their knowledge and experience to help parents understand the child's behaviour and teach them various techniques that promote the child's development and make learning more effective (Ross, 2018; Watts Pappas and McLeod, 2009). Involving parents in treatment is a method that increases the effectiveness of treatments and reduces the amount of time a speech and language therapist spends with a child (Watts Pappas and McLeod, 2009). Infants and toddlers learn best through everyday experiences and interactions with familiar people and in familiar situations (Ross, 2018).

As Klatte, Hardling, and Roulstone (2019) note, speech and language therapists play an important role in supporting parents to engage in therapy and help their children. Speech and language therapists also have an important influence on how engaged and involved parents are, as they must have the appropriate knowledge on how to approach and encourage parents. Gibbard and Smith (2016) indicate that speech and language therapists report that they find parent involvement to be the most difficult aspect of speech and language therapy. Studies by Dale (1996), Hornby (2011), and Shartrand et al. (1997) confirm the importance of cooperation between parents and professionals and emphasise that the competence to collaborate with parents is very important for building this relationship. Based on the analysis of the available literature, competence in working with parents can be defined as a construct of knowledge

(knowledge about strategies and techniques for engaging parents in therapy) (Buckley, 2003; Hornby, 2011; Shartrand et al., 1997), knowledge of barriers to participation (Hornby, 2011), knowledge of working with parents (Buckley, 2003; Warren et al., 2011), knowledge of family dynamics (Hanna & Rodger, 2002; Hornby, 2011; Watts Pappas & McLeod, 2009)), skills (communication and active listening skills (Buckley, 2003; Hornby, 2011; Shartrand et al., 1997; Warren et al., 2011; Wubbels et al., 2006)), cooperation skills (Buckley, 2003; Bayat, 2012; Robben, 2012)), attitudes toward parents (Hornby, 2011; Gestwicki, 2016) and attitudes toward working with parents (Hornby, 2011; Gestwicki, 2016)) that enable the speech and language therapist to successfully cooperate with children's parents in therapy.

Watts Pappas, McAllister, and McLeold (2016) record various levels of parental involvement (from informing through cooperation to support to control). Knowledge of the diverse ways to involve parents in therapy, combined with knowledge about families, provides professionals with the opportunity to engage parents in activities that are most appropriate for them. Knowledge about families and how families function (Hanna & Rodger, 2002; Iversen et al., 2003; Hornby, 2011; Ross, 2018; Watts Pappas & McLeod, 2009) and knowledge about strategies and techniques for effectively engaging family members in therapy (Hornby, 2011; Watts Pappas & McLeod, 2009) are most frequently cited in the review of the literature on the knowledge needed for effective cooperation.

In addition to defining knowledge that promotes cooperation with parents, Hornby (2011), Watts Pappas et al. (2008), and Watts Pappas and McLeod (2009) emphasise understanding the barriers to collaborating with parents. This understanding can help professionals overcome barriers and build successful cooperation. Building a cooperative, respectful partnership between the professional and parents (one that assumes parents know their child best) also requires knowledge of collaborating with parents that can strengthen parent involvement skills (Buckley, 2003; Warren et al., 2011). It is critical that parents recognise their own role in promoting the development of their child's language skills and develop a sense of competence and self-worth in the process of treatment (Buckley, 2003).

Even when professionals have the knowledge necessary to collaborate with parents, it does not necessarily lead to cooperation, let alone successful cooperation. Skills are important for putting knowledge into action, that is, knowing how to do something.

The skills that professionals need to perform their tasks successfully represent the implementation part of their professional qualifications. Hornby (2011), Shartrand et al. (1997), and Warren et al. (2011) addressed the competence

to collaborate with parents emphasising communication as the most important skill for working effectively with parents. Hornby (2011) emphasises that the quality of a relationship depends on the quality of communication, as it can also be a prerequisite for the quality of relationships during cooperation. Wilson (2016) confirms that parents value communication skills and active listening skills as a starting point for building and achieving successful cooperation between parents and professionals.

Hornby (2011), Ross (2018), and Wubbels et al. (2006) have identified communication skills that should be mastered by all educational professionals. They should be proactive and able to create a communicative partnership when communicating with parents. Wubbels et al. (2006) focus on the emotional part of communication skills, specifically empathy and patience, confidence and trust, active listening, and knowledge of cooperative strategies. Buckley (2003), Hornby (2011), and Watts Pappas and McLeod (2009) also emphasise active listening and conversational techniques as key elements of communication skills.

The influence of speech and language therapists' attitudes should also be included in the discussion of competence in working with parents, as they are a significant factor in this competence. Hornby (2011) and Gestwicki (2016) considered attitudes from two perspectives: attitudes toward parents and attitudes toward cooperation with parents. Attitudes toward parents are further divided into those that hinder cooperation and those that strengthen cooperation. Hornby (2011) points out that parents are most often treated as a problem, which is especially highlighted when parents have different attitudes than professionals. The most common attitudes of professionals that are also barriers to cooperation are: 'parents who need help are too sensitive', 'parents are less competent than a professional', 'parents are to blame for their children's problems', and 'parents need to be treated professionally'.

As Hornby (2000) points out, it is important to note that both professionals and parents are experts: teachers in relation to education and parents in relation to their own children (see Šteh & Kalin, 2018). Based on attitudes that parents are less valuable, it is understandable that there is no room for joint planning of goals and actions. If professionals consider themselves more important in this relationship, it is unlikely that they will attempt to build a relationship that leads to cooperation. It is also unlikely that sharing of responsibilities will occur, which is a prerequisite for cooperation (Hornby, 2011).

Attitudes that contribute to interaction in everyday situations may also help to improve cooperation between speech and language therapists and parents. The tendencies of professionals that contribute to this relationship are flexibility, willingness to accept other ideas, empathy, and sincerity (Garmon, 2004;

Hornby, 2011). The formation of professionals' attitudes is influenced by several factors, such as level of education and lack of continuous professional training in working with parents (Strgar, 2004). Training of professionals should help develop sensitivity to attitudes that strengthen cooperation with parents, but Garmon (2004) notes that training benefits only those individuals who have a good disposition toward such a relationship.

The research and theoretical background emphasises the importance of cooperation with parents of children in speech and language therapy, as a discrepancy has been found between the desired and actual situation in the area of cooperation between speech and language therapists and parents (Dehnhardt & Ritterfeld, 1998; Watts Pappas et al., 2008; Watts Pappas & McLeod, 2009). The reason for this discrepancy is primarily due to the lack of competencies of speech and language therapists in this area (Dehnhardt & Ritterfeld, 1998). Therefore, examining speech and language therapists' self-assessment of their competence in working with parents is necessary.

Present study

Nowadays, parents are increasingly considered to be an invaluable source of information about their children since they spend most of their time with them. They are one of the sources of information that speech and language therapists use in the treatment process, along with information they gather through their own observation of the child's development (Buckley, 2003). In the treatment process, speech and language therapists use their knowledge and experience to help parents understand their child's behaviour and teach them various techniques and activities to help them act in ways that promote the child's development and make learning more effective (Ross, 2018; Watts Pappas & McLeod, 2009).

Speech and language therapy education in Europe is diverse and constantly evolving and is at different stages of development in different countries. The two countries, Slovenia and Macedonia, which are the focus of this paper, are interesting to study because they share some common historical, cultural, and linguistic characteristics and have a strong mutual influence on various aspects of speech and language therapy education.

The beginning of organised speech and language therapy services in Slovenia dates back to 1942 and in Macedonia to 1950 (Panova, 2012; Novšak Brce & Kogovšek, 2019). During this period, the first speech and language therapy departments and clinics were opened in both countries. The need for treatment of children with communication, speech, language, and hearing problems grew.

From the mid-1980s, study programmes were established in both countries to train future speech and language therapists. Because of the common past, some similarities and differences in the education of speech and language therapists can be identified. Both Slovenian and Macedonian speech and language therapists work in health care institutions, educational institutions, specialised hearing and speech rehabilitation centres, and in private practice (DlogS, 2021a; Georgieva, 2010).

Although speech and language therapy education in Macedonia started a few years later (Georgieva, 2010) than in Slovenia (Omerza, 2002), the formalisation of speech and language therapists' education and the common past have ensured that there is continuous cooperation between the two countries. In addition to the implementation of various projects, students from Macedonia are also enrolled at the Slovenian university, where speech and language therapists are trained. This led us to investigate the importance of collaboration between parents and speech and language therapists in both countries. The present study can increase knowledge about the importance of collaboration between parents and speech and language therapists (SLTs) in Slovenia and Macedonia and fill a gap in the literature on this topic.

Therefore, the aim of this study is to examine how SLTs assess their knowledge and the skills that they need for cooperation with parents and what their attitudes are in general regarding the involvement of parents in speech and language therapy. The specific research questions are as follows: (a) to determine whether the self-assessment of competence of cooperation with parents differs between speech and language therapists from Slovenia and North Macedonia, (b) to examine the influence of variables of professional characteristics of SLTs (i.e., years of work experience, area of work and additional professional training on three composites scores of cooperation with parents (knowledge, skills, attitudes)) separately for each country.

Methods

Participants

One hundred and ten speech and language therapists participated in the study, of which 62 (56.4%) were SLTs practising in Slovenia and 48 (43.6%) in North Macedonia. Among SLTs from both countries, 61 (98.4%) females predominated from Slovenia and 46 (95.8%) from North Macedonia. Only three male SLTs participated in the study: one (1.6%) from Slovenia and two (4.2%) from North Macedonia.

SLTs from representative institutions (health centres, kindergartens, schools, specialised centres or centres for people with special needs) from both countries participated in the study.

Table 1 shows the data on the age of the participants, the years of work experience, the field of work or employment sector, and the frequency of participation in additional professional training events on working with parents in the last three years for SLTs from Slovenia and North Macedonia. In both countries, the sample included SLTs with fewer years of work experience (*Mdn* = 5.0, *IQR* = 2.6 to 17.0). Respondents did not differ significantly by years of work experience ($U = 1168.5$, $Z = -1.931$, $p = .053$), by the number of additional professional training sessions for working with parents ($\chi^2(2) = 0.613$, $p = .736$) and by employment system ($\chi^2(1) = 0.188$, $p = .664$). Since there are no differences in the independent variables between these two samples, this indicates that these two samples are relatively homogeneous.

Table 1

Participants' demographic characteristics

	Slovenia (*n* = 62)	North Macedonia (*n* = 48)
Age in years		
Mean (*SD*)	38.3 (11.7)	32.4 (9.1)
Median (Q_1-Q_3)	34 (28.0-48.3)	29.5 (26.0-38.0)
Range (in years; min-max)	25-61	22-54
Years of work experience		
Fewer (≤ 5;11 years), *n* (%)	29 (46.8)	29 (60.4)
More (≥ 6;0 years), *n* (%)	33 (53.2)	19 (39.6)
System of employment		
Education, *n* (%)	31 (50.0)	22 (45.8)
Health care, *n* (%)	31 (50.0)	26 (52.2)
Additional professional training sessions on cooperation with parents in the last three years		
None, *n* (%)	39 (62.9)	32 (66.7)
One or more, *n* (%)	23 (37.1)	16 (33.3)

Instrument

For research purposes, a questionnaire was developed for self-assessment of the competence of cooperation between parents and SLTs. Based on the literature, the competence of cooperation was first defined as a construct of knowledge, skills, and attitudes that enable or hinder SLTs' effective cooperation with parents of children involved in treatment. Key behaviours (e.g., active listening) and representative examples (e.g., making eye contact when talking to parents) were then designed. The instrument was developed in both languages, Slovenian for Slovenian speech and language therapists and Macedonian for speech and language therapists from North Macedonia. The questionnaire contains 32 items related to the following domains: *knowledge* (6 items): knowledge of strategies and techniques for effective involvement of parents in treatment, knowledge of barriers to cooperation, and knowledge of family dynamics (e.g., I can assess whether the parents are able to do the exercises with the child independently at home); *skills* (10 items): communication and active listening skills, and cooperation skills (e.g., I can communicate well with parents, even if they have a different opinion than I do); *attitudes* (16 items): attitudes toward cooperation with parents, attitudes that hinder cooperation with parents, and attitudes that lead to successful cooperation with parents (e.g., I think that parents are to blame for most of a child's problems).

The SLTs responded to each item using a five-point rating scale (*1 - not applicable to me at all, 2 - not applicable to me, 3 - neither applicable nor invalid, 4 – applicable to me, 5 - completely applicable to me*).

To determine reliability as the internal consistency of the questionnaire, Cronbach's α-reliability coefficient was calculated. The internal consistency of the individual areas was tested with Cronbach's alpha: Knowledge ($\alpha = .651$), Skills ($\alpha = .728$), and Attitudes ($\alpha = .688$). All coefficients were above the threshold of .60, which is still an acceptable level of reliability (Garson, 2012).

Prior to completing the instrument, the SLTs also completed a brief questionnaire that included information on gender, age, professional experience, professional position, and additional professional training on working with parents.

Data collection and analysis

In early May 2021, an invitation to collaborate was emailed to SLTs and/or facility leadership in both countries, which included a link to an online questionnaire for self-assessment of cooperation competencies between SLTs and

parents. SLTs were informed of the purpose and objectives of the study. All study participants were asked to participate on a voluntary basis and provide informed consent. They were assured that their responses would remain anonymous and confidential.

Informed consent was obtained from all respondents before the survey began. An invitation to collect data with a link to the online questionnaire was sent by email to SLTs in both countries. The questionnaire was sent in Slovenian to SLTs and in Macedonian to SLTs from North Macedonia, so both questionnaires contained the same questions in different languages. The questionnaire was anonymous, was completed individually, and the SLTs were informed about the purpose and aim of the study. The online questionnaire was active for one month.

Variables were analysed using descriptive statistical methods and normality tests (Shapiro-Wilk test). Internal consistency for each domain was examined using Cronbach's alpha coefficients (α). The Mann-Whitney *U* test, a non-parametric test, was used to assess possible differences between groups. The effect size *r* was calculated for pairwise comparisons of groups using the *z*-statistics of the Mann-Whitney *U* test. To examine the influence of variables of professional characteristics of SLTs (professional work, the area of work and additional professional training) on three variables of cooperation with parents (knowledge, skills and attitudes), a series of ANOVAs were conducted with 2×2 factorial design (country × years of work experience (≤ 5;11 years, ≥ 6;0 years), and country × area of work (education, health care), and country × additional professional training (none, one or more)). The collected data were analysed using SPSS 22.0 (for Windows), and the selected statistical significance level for hypothesis tests was $p < .05$.

Results

First, we calculated the descriptive statistics for each domain by country (Table 2). The Shapiro-Wilk test showed that the variables were not normally distributed. Therefore, we used nonparametric tests in further analyses.

The results for the knowledge and skills domain tend to be higher, indicating that speech and language therapists from Slovenia and North Macedonia positively rated their knowledge needed to work effectively with parents. The results for the domain of attitudes about cooperation with parents tend to be lower.

Table 2
Descriptive statistics for each domain by country

Domain	Mean	SD	Median	*IQR*: Q_1-Q_3	Min	Max	*W*	*p*
Slovenia (*n* = 62)								
Knowledge as part of the competence of cooperation with parents.	4.37	0.41	4.42	4.17-4.67	3.33	5.00	.954	.020
Skills as part of the competence of cooperation with parents.	4.19	0.39	4.30	3.80-4.50	3.60	4.90	.935	.003
SLTs' attitudes about cooperation with parents.	3.72	0.26	3.75	3.56-3.88	3.13	4.31	.987	.766
N. Macedonia (*n* = 48)								
Knowledge as part of the competence of cooperation with parents.	4.38	0.45	4.33	4.17-4.67	2.67	5.00	.860	.000
Skills as part of the competence of cooperation with parents.	4.14	0.47	4.10	3.80-4.50	3.20	5.00	.976	.429
SLTs' attitudes about cooperation with parents.	3.11	0.21	3.16	2.95-3.23	2.56	3.63	.974	.371

We used the Mann-Whitney U test to determine whether the self-assessment of competence of cooperation with parents differs between SLTs from Slovenia and North Macedonia (Table 3).

Table 3
Differences between self-assessments of SLTs on the competence of cooperation with parents according to the country of practice

	Slovenia (*n* = 62)		N. Macedonia (*n* = 48)		*U*	*Z*	*r*
	Median	*IQR*: Q_1-Q_3	Median	*IQR*: Q_1-Q_3			
Knowledge as part of the competence of cooperation with parents.	4.42	4.17-4.67	4.33	4.17-4.67	1454.5	–0.204	.02
Skills as part of the competence of cooperation with parents.	4.30	3.80-4.50	4.10	3.80-4.40	1387.5	–0.607	.06
SLTs' attitudes about cooperation with parents.	3.75	3.56-3.88	3.16	2.95-3.23	88.0	-8.452*	0.81

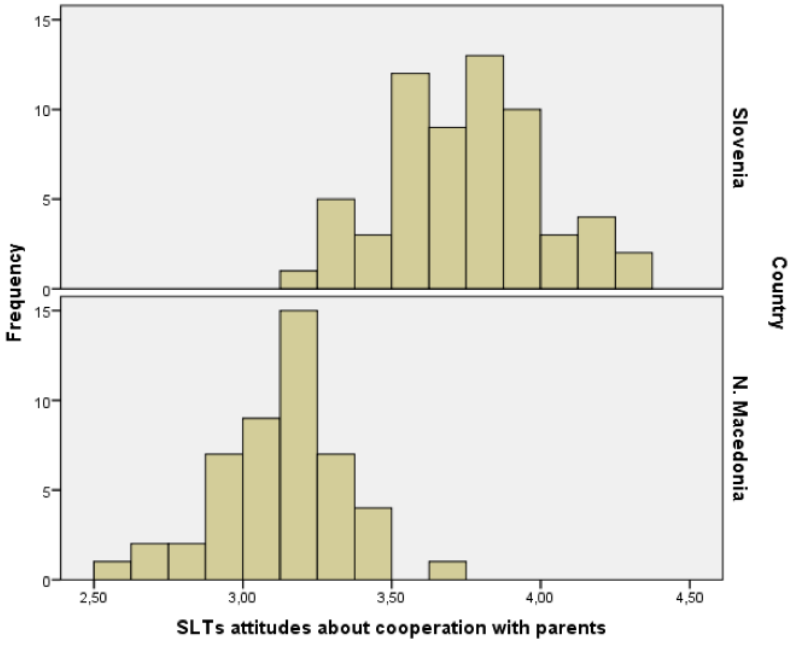
Note. * $p < .001$

A comparison of the competencies in cooperation with parents between countries showed that differences in knowledge and skills between SLTs were

not statistically significant (Table 3). A Mann-Whitney test revealed that speech and language therapist's attitudes about cooperation with parents were significantly greater in Slovenia (*Mdn* = 3.75) than in North Macedonia (*Mdn* = 3.16), (U = 88.0, p < .001, r = .81). A large effect was detected. Positive attitudes indicate greater recognition of the importance of working with parents and contribute to the formation of a cooperative partnership (Figure 1).

Figure 1

SLTs' attitudes about cooperation with parents



Additionally, our goal was to examine the influence of variables of professional characteristics of SLTs (i.e., years of work experience, area of work and additional professional training on three composite scores of cooperation with parents (knowledge, skills, attitudes)) separately for each country.

Knowledge

We conducted three ANOVAs with a 2×2 factorial design (country × years of work experience, country × area of work, and country × additional professional training) on the knowledge domain. Means and standard deviations for the knowledge domain are provided in Table 4.

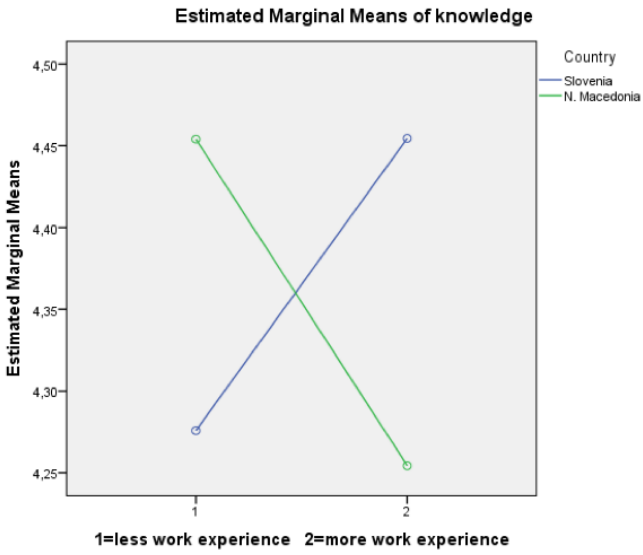
Table 4

Means and standard deviation for scores on knowledge domain for each country by years of work experience, area of work, and additional professional training

Professional characteristics of SLTs		Country			
		Slovenia (*n* = 62)		N. Macedonia (*n* = 48)	
		M	*SD*	*M*	*SD*
Years of work experience	less (≤ 5 years)	4.28	0.43	4.45	0.34
	more (≥ 6 years)	4.45	0.37	4.25	0.34
Area of work	education	4.38	0.50	4.48	0.31
	health care	4.36	0.30	4.29	0.53
Additional professional training	none	4.36	0.42	4.32	0.50
	one or more	4.39	0.39	4.48	0.32

The first factorial ANOVA was conducted that examined the effect of two independent variables (country, years of experience) on the knowledge domain. Country consisted of two levels (Slovenia, North Macedonia), and years of work experience included two levels (less experienced (≤ 5 years of work experience) and more experienced (≥ 6 years of work experience)). The results of the 2 × 2 ANOVA revealed a significant interaction between the effects of country and years of work experience on the knowledge domain (F (1,106) = 5.32, p = .02, partial η^2 = 0.05), indicating that any differences between countries on knowledge were dependent upon years of work experience (Table 4). In Slovenia, knowledge about working with parents increases with years of work experience (see Figure 2). There was a non-significant main effect for the country (p = .89) and a non-significant main effect for years of work experience (p = .90).

Figure 2
Estimated marginal means of knowledge



As for the second factorial ANOVA analysis, there was no interaction between country and area of work ($F(1,106) = 1.04$, $p = .31$), no main effect for country ($p = .88$), and no main effect for the area of work ($p = .20$). As for the third factorial ANOVA analysis, there was no interaction between country and additional professional training ($F(1,106) = 0.51$, $p = .48$), and no main effect for country ($p = .77$), and no main effect for additional professional training ($p = .28$).

Skills

We conducted three ANOVAs with a 2×2 factorial design (country × years of work experience, country × area of work, and country × additional professional training) on the skills domain. Means and standard deviations for the skills domain are provided in Table 5.

Table 5

Means and standard deviation for scores on skills domain for each country by years of work experience, area of work, and additional professional training

Professional characteristics of SLTs		Country			
		Slovenia (*n* = 62)		N. Macedonia (*n* = 48)	
		M	*SD*	*M*	*SD*
Years of work experience	less (≤ 5 years)	4.20	0.39	4.19	0.49
	more (≥ 6 years)	4.18	0.40	4.07	0.44
Area of work	education	4.20	0.41	4.22	0.50
	health care	4.18	0.38	4.07	0.45
Additional professional training	none	4.19	0.39	4.09	0.49
	one or more	4.20	0.41	4.24	0.43

The first factorial ANOVA was conducted that examined the effect of two independent variables (country, years of experience) on the skills domain. The analysis revealed no interaction between the effects of country and years of work experience on the skills domain ($F(1,106) = 0.40$, $p = .53$), no main effect for country ($p = .45$), and no main effect for the area of work ($p = .42$). As for the second factorial ANOVA analysis, there was no interaction between country and area of work ($F(1,106) = 0.65$, $p = .42$), no main effect for country ($p = .60$), and no main effect for the area of work ($p = .32$). As for the third factorial ANOVA analysis, there was no interaction between country and additional professional training ($F(1,106) = 0.72$, $p = .40$), no main effect for country ($p = .77$), and no main effect for additional professional training ($p = .36$).

Attitudes

We conducted three ANOVAs with 2×2 factorial design (country × years of work experience, country × area of work, and country × additional professional training) on the attitudes domain. Means and standard deviations for the attitudes domain are provided in Table 6.

Table 6

Means and standard deviation for scores on attitudes domain for each country by years of work experience, area of work, and additional professional training

Professional characteristics of SLTs		Country			
		Slovenia (*n* = 62)		N. Macedonia (*n* = 48)	
		M	*SD*	*M*	*SD*
Years of work experience	less (≤ 5 years)	3.75	0.20	3.13	0.20
	more (≥ 6 years)	3.69	0.30	3.07	0.23
Area of work	education	3.72	0.24	3.07	0.22
	health care	3.71	0.28	3.14	0.19
Additional professional training	none	3.69	0.24	3.12	0.22
	one or more	3.77	0.29	3.09	0.20

The first factorial ANOVA was conducted that examined the effect of two independent variables (country, years of experience) on the attitudes domain. The analysis revealed no interaction between the effects of country and years of work experience on the skills domain ($F(1,106) = 0.00$, $p = .98$). A simple main effect analysis showed that countries differ significantly in attitudes ($p < .00$, partial $\eta^2 = 0.623$), in favour of Slovenia. There was a non-significant main effect for years of work experience ($p = .22$) (Table 6).

As for the second factorial ANOVA analysis, there was no interaction between country and area of work ($F(1,106) = 0.78$, $p = .35$). A simple main effect analysis showed that countries differ significantly on attitudes ($p < .00$, partial $\eta^2 = 0.624$), in favour of Slovenia. There was a non-significant main effect for the area of work ($p = .48$) on attitudes (Table 6).

As for the third factorial ANOVA analysis, there was no interaction between countries and additional professional training ($F(1,106) = 1.28$, $p = .26$). Simple main effects analysis showed that country differs significantly in attitudes ($p < .00$, partial $\eta^2 = 0.613$) in favour of Slovenia. There was a non-significant main effect for additional professional training ($p = .55$) (Table 6).

Discussion

This study examines the collaboration with parents of SLTs in Slovenia and North Macedonia measured by the knowledge that SLTs have and which is a prerequisite for this cooperation, the skills needed to interact with parents, and the attitude towards speech and language therapy. A number of studies

(Dale, 1996; Hornby, 2000, 2011; Hanna & Rodger, 2002; Buckley, 2003; Watts Pappas & McLeod, 2009) have shown that there is a significant relationship between parental engagement and the SLTs' knowledge and skills required for it. Accordingly, the motivation to conduct this study was to deeper explore the relationship between SLTs and parents, examining the role of three profession-specific variables (i.e., years of work experience, area of work, and additional professional training) in the success of the collaboration between SLTs and parents in a cross-linguistic context.

Differences between countries

The first question of this study was to compare SLTs' self-assessments of competence of cooperation with parents in relation to the country in which they practice due to the possible specifics in the professional development of SLTs in Slovenia and in North Macedonia. It should be emphasised that it cannot be assumed that the differences between the SLTs from Slovenia and North Macedonia are due to differences in the training programmes for SLTs, as it is possible that some SLTs from the study completed their training outside the country of their practice.

The differences in self-assessment of knowledge and skills necessary for successful cooperation with parents between SLTs from both countries were found not to be statistically significant. Table 3 shows that SLTs from Slovenia and Nort Macedonia differ in their self-assessment of attitudes only in a way that the Slovenian SLTs rate their attitudes significantly higher.

In Slovenia, some studies (Plohl, 2016; Schmidt, 2019; Vidovic & Tomc Šavora, 2015) indicate the importance of cooperation between parents and SLTs. The authors of this study are not aware of any work on cooperation with parents in North Macedonia that is directly comparable to the present paper.

The professional display of cooperation with parents certainly has implications for the results obtained in this work. Slovenian SLTs have more positive attitudes toward parental involvement in speech and language therapy, which could be one of the influences of the speech and language therapy profession in this country, advocating and raising awareness of the importance of SLTs' collaboration with parents. The results also showed that SLTs from North Macedonia scored average on the attitude domain, possibly indicating a lack of professional consensus on the importance of involving parents in speech and language therapy.

The differences in self-assessment of attitudes between SLTs from Slovenia and North Macedonia may be due to training and lack of continuous

professional training in cooperation with parents (Garmon, 2004) but also due to experiences and influences of the immediate and wider environment (Boštjančič, 2011) or other factors. However, in the absence of literature examining these differences, no comparison can be made with other researchers; consequently, there is no way to place this study among others. Therefore, it can only be concluded that there are differences in the sample of the present study between SLTs from Slovenia and from North Macedonia in terms of self-assessment of attitudes as part of the competence of cooperation with parents. Further research should investigate these differences in more detail.

This study also aimed to examine the influence of variables of professional characteristics of SLTs (of professional work, the area of work and additional professional training) on three variables of cooperation with parents (knowledge, skills and attitudes).

Knowledge

Knowledge of the family and family functioning (Hanna & Rodger, 2002; Iversen et al., 2003; Hornby, 2011; Ross, 2018; Watts Pappas & McLeod, 2009) and knowledge of strategies and techniques for effectively engaging parents and family members in SLT therapy (Hornby, 2011; Watts Pappas & McLeod, 2009) are most frequently cited in the review of literature on the knowledge needed for effective engagement.

Our data show that individual main effects (i.e., years of work experience, area of work, and additional professional training) do not influence the construction of knowledge needed for cooperation with parents. SLTs from Slovenia and North Macedonia have the necessary knowledge to work with parents. Regardless of professional experience, the interaction of country and years of work experience is important for the knowledge domain. This means that in Slovenia, having more years of work experience affects the knowledge that SLT has, and that is necessary for cooperation with parents. It can be said that the knowledge Slovenian SLTs acquire during their studies is built with experience. In North Macedonia, this is not the case. SLTs with fewer years of work experience have a greater impact on their knowledge. Data obtained in North Macedonia are in agreement with Hoy and Speros' study (2005) which found that professionals rated themselves as more successful in establishing a cooperative relationship with parents immediately after completing formal training and that ratings of performance decreased after five years of practice. The results obtained could be due to the fact that more experienced professionals are more critical of themselves. Moreover, some authors (Keilmann et al.,

2004; Watts Pappas et al., 2008) found that more experienced SLTs involved parents less in therapy, while others (Law et al., 2019) found no differences in parental involvement in treatment when comparing less experienced SLTs with more experienced ones. The assumption that professionals gain various new experiences, build new knowledge, and become more competent with years of practice (King, 1998) is not consistent with the findings of the present study.

It makes no difference in which system of employment (education or health care) SLTs work. Both sectors provide (non)opportunities to work with parents and promote the opportunity to develop and offer knowledge on an equal basis. This means that all SLTs, regardless of their country and area of work, have the same opportunities to develop their knowledge in working with parents. Considering the results obtained, it is somewhat surprising that additional education does not affect knowledge of working with parents. This can be explained as follows: (a) in the question about additional professional training in working with parents, we limited the answer to the last three years. For example, someone may have attended excellent training on working with parents five years ago and not been able to answer the question. This is a limitation of our study; (b) at the same time, this does not mean that SLTs (do not) attend training; it may simply be a lack of continuous professional training addressing the knowledge and skills for working with parents.

Skills

Watts Pappas and McLeod (2009) emphasise that parents value communication skills as a starting point for establishing and achieving successful parent-professional collaboration. Other authors (Hornby, 2011; Ross, 2018; Watts Pappas & McLeod, 2009; Warren et al., 2011) who have studied the competency of working with parents specifically highlight communication skills as the most important skills for working effectively with parents. Hornby (2011) points out that the quality of the relationship depends on the quality of communication, as this can also be a prerequisite for good collaborative relationships.

Our data (see Table 5) showed that none of the SLTs' professional characteristics (years of work experience, area of work and additional professional training) affected their skills for working with parents. That is, in no area of work (education, health care) were skills for working with parents promoted or not. Although some researchers (Watts Pappas et al., 2008) have reported differences in cooperation between SLTs and parents regarding to the therapist's area of work, it should be emphasised that parental involvement in treatment is partially the responsibility of SLTs (Hornby, 2011). SLTs working in education

have fewer opportunities to work with parents than therapists working in health care. The system is set up so that treatment occurs while the child is in school or in kindergarten. The SLT meets only with teachers or educators and not with the children's parents. Thus, the information about the work with the children is shared with the teachers or educators, who then pass it on to the parents (Watts Pappas et al., 2008). However, it should be noted that in some educational institutions (e.g., VVZ Kekec, Grosuplje), the SLT works with parents and involves them in all treatments, although the treatments take place when the child is in kindergarten (Vidmar, 2016). Years of work experience have no impact on developing the skills to work with parents. This means that SLTs change the skills for working with parents very little in a planned but intentional way. Additional professional training also has no effect on it. The reasons for this are the same as mentioned above. The lack of differences between the self-assessments of SLTs from Slovenia and North Macedonia regarding the competence of cooperation with parents in relation to their professional experience can also be interpreted with the family-centred and family-friendly models (Watts Pappas & McLeod, 2009). SLTs need to know how a family functions and how to work with parents, to have skills and techniques to guide parents, and interpersonal skills to build a successful relationship between professionals and parents. Watts Pappas and McLeod (2009) say that parents value communication skills as a starting point for building and achieving successful collaboration between parents and professionals. Based on parents' expectations of communication with SLTs, Watts Pappas and McLeod (2009) indicate that parents expect SLTs to take the time to answer their questions and explain aspects of the child's treatment and progress in a way that parents can understand. Empathy in understanding parents' answers is critical. In this way, parents gain more confidence that someone understands and supports them, which is essential to building successful mutual understanding and collaboration (Hornby, 2011). Consistent with the above findings, communication skills that contribute to competence in working with parents include conversational techniques (setting the topic, conveying information, summarising, paraphrasing, concluding), active listening, and awareness of the importance of nonverbal communication. Despite the undisputed importance of communication skills for effective collaboration with parents, Bartels and Eskow (2010) note that good communication skills do not always lead to successful collaboration but that a lack of them almost always leads to barriers to collaboration.

Attitudes

The influence of SLTs' views has a significant impact on the competence of working with parents. Hornby (2011) discusses attitudes from two perspectives: attitudes toward parents and attitudes toward working with parents. Attitudes toward parents are further divided into attitudes that hinder collaboration and attitudes that promote collaboration. Attitudes that contribute to interaction in everyday situations can also enhance collaboration between SLTs and parents. Ross (2018) cites family orientation, respect for family diversity, and respect for the individuality and uniqueness of each family as attitudes that strengthen the relationship between SLTs and parents. Such views help support parents, their expectations, and their goals (Watts Pappas & McLeod, 2009).

Our research showed that attitudes about cooperation with parents are not affected by years of work experience, area of work, or additional professional training. The country where the SLTs work has an impact. SLTs in Slovenia involve parents more in their work. This means that Slovenian society is more inclusive, appreciates and respects partnerships with parents, and similar socially valuable information that is acquired unconsciously and through indirect learning.

The differences between SLTs in the self-assessment of the attitudes that lead to successful cooperation regarding the frequency of participation in professional training on cooperation with parents may be due to the fact that SLTs have not received sufficient continuous training in this area (Garmon, 2004). Professional training should help develop sensitivity to the attitudes that reinforce cooperation with parents, but Garmon (2004) adds that training is useful only for those individuals who have a good predisposition to adopt such attitudes. The predisposition is based on past experiences and the ability to process them in real-life situations (Garmon, 2004). The part of competencies related to personality traits and abilities is mainly the result of genetic factors, while attitudes and values are the results of experiences and influences of the immediate and wider environment (Boštjančič, 2011). The results of the study also indicate the importance of continuous training in cooperation with parents, as only repeated training and professional learning can lead to lasting changes in a professional's own practice, as active learning helps professionals focus on specific situations in their work (Steward, 2004).

Several factors influence the formation of professionals' views, such as level of education and lack of additional professional training to work with parents. Training professionals should help develop sensitivity to attitudes that enhance engagement with parents, but Garmon (2004) notes that training is

useful only for those individuals who have a good disposition to adopt such attitudes. Similarly, the results of several studies have shown that professionals who have experience working in a multicultural setting are more likely to develop positive attitudes toward diversity. Respect for parents as equal partners is the foundation for developing positive attitudes toward parental involvement (Hornby, 2011).

Limitations and further directions

The findings of this study have to be seen in light of some limitations. The first limitation of the present study relates to sample size. Therefore, in order for the data to be generalizable, it is important to include a representative sample of professionals/SLTs in future research, controlling for their years of experience, as well as involvement in other sectors such as private and social care. The measurement of constructs (knowledge, skills, attitudes) is complex, and with a small sample and a small number of items, there is a high probability that the selected items did not describe the full scope of each construct. The second limitation relates to the refinement of the items in the questionnaire: a statement related to the additional professional training should not be time-bound. The results obtained indicate that a more comprehensive questionnaire needs to be developed to more clearly define the role of knowledge, skills, and attitudes.

Conclusion

According to the results of this study and the theoretical concepts on which the study is based, the responsibility of speech and language therapists to build cooperative relationships with the parents of children in treatment is one of the important imperatives of professional activity. The competence to cooperate with parents is part of the professional qualification of a speech and language therapist, which must be constantly developed.

The results of this study contribute to the theoretical knowledge and better understanding of the competence that speech and language therapists need to work effectively with parents. With the knowledge and understanding of this competence, we can help to promote a cooperative relationship between parents and speech and language therapists, achieve successful collaboration between them, and consequently increase the effectiveness of speech and language therapy treatments. The results of the study on the self-assessment of the competence of cooperation between speech and language therapists and

parents can also be a good starting point for the continuous development of this competence through non-formal education.

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Biographical note

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Dimensions of Object Relations in People with Autism Spectrum Disorder as a Basis for Strengthening Social Relatedness Skills

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This paper presents the results of a study focusing on the dimensions of object relations in people with autism spectrum disorder. An object relation denotes a relationship with a significant other, within which several identification processes take place through a meaningful emotional exchange. This is described by the developmental process of separation and individuation, which primarily occurs in children from birth to their third year of life. Although deficits in social relationships represent the most typical features of autism, there is still a great deal of uncertainty in this field. Based on the theoretical background, we hypothesised that differences in the characteristics of object relations in people with autism spectrum disorder compared to the characteristics of object relations in people without autism spectrum disorder are reflected in a greater expression of disturbances in object relations, especially in the more pronounced dimensions of greater social isolation and symbiotic merging. The quantitative research sample comprised 38 adults with autism spectrum disorder with normal intellectual abilities and 100 adults without autism spectrum disorder. The Test of Object Relations, which measures the individual dimensions of object relations, was used for data collection. The results show that there are statistically significant differences between the two groups of respondents, as the dimensions of symbiotic merging, social isolation and separation anxiety are more pronounced in adults with autism spectrum disorder. These findings serve as a basis for designing professional support for people with autism spectrum disorder in order to promote autonomy to strengthen the skills needed for social relatedness and social inclusion.

Keywords: object relations, people with autism spectrum disorder, social relatedness, separation-individuation process, professional support

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Dimenzije objektnih odnosov pri osebah z avtističnimi motnjami kot podlaga za krepitev veščin socialne povezanosti

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V prispevku so predstavljeni izsledki študije, ki se je osredinila na dimenzije objektnih odnosov pri osebah z avtističnimi motnjami. Objektni odnos označuje odnos s pomembno drugo osebo, znotraj katerega potekajo številni identifikacijski procesi prek pomembne čustvene izmenjave. To opisuje razvojni proces separacije in individuacije, ki primarno poteka pri otrocih od rojstva do tretjega leta življenja. Čeprav primanjkljaji v socialnih odnosih predstavljajo najbolj tipične značilnosti avtizma, je na tem področju še vedno veliko negotovosti. Na podlagi teoretičnega ozadja smo postavili hipotezo, da se razlike v značilnostih objektnih odnosov pri osebah z avtističnimi motnjami v primerjavi z značilnostmi objektnih odnosov pri osebah brez avtističnih motenj kažejo v večji izraženosti motenj v objektnih odnosih, zlasti v izrazitejših dimenzijah večje socialne izolacije in simbiotičnega zlivanja. Kvantitativni raziskovalni vzorec je obsegal 38 odraslih oseb z avtističnimi motnjami z normalnimi intelektualnimi sposobnostmi in 100 odraslih oseb brez avtističnih motenj. Za zbiranje podatkov je bil uporabljen t. i. test objektnih odnosov, ki meri posamezne dimenzije objektnih odnosov. Rezultati kažejo, da med obema skupinama anketirancev obstajajo statistično pomembne razlike, saj so dimenzije simbiotičnega zlivanja, socialne izolacije in separacijske anksioznosti izrazitejše pri odraslih z avtističnimi motnjami. Te ugotovitve služijo kot podlaga za oblikovanje strokovne podpore osebam z avtističnimi motnjami z namenom spodbujanja avtonomije za krepitev veščin, potrebnih za socialno povezanost in socialno vključenost.

Ključne besede: objektni odnosi, osebe z avtističnimi motnjami, socialna povezanost, proces separacije in individuacije, strokovna podpora

Introduction

In order to better understand the aspects of social interaction in people with autism spectrum disorder (ASD), one may rely on the Object Relations Theory, a term most commonly identified with Melanie Klein's work, while the term 'object relations' was popularised by Ronald Fairbairn. Object Relations Theory focuses on the relational structural models of a child's development, where a relationship represents a building block of the psychic structure (Mahler et al., 1975). "An object relation is defined as a relationship with a person, with whom one engages in a meaningful emotional exchange leading to the materialization of identification processes, in which the ego activates all of its abilities, thus also developing its own structure" (Praper, 1999, p. 24). The process of forming object relations and the identification process may be described by the developmental separation-individuation process, which primarily takes place during the first three years of a child's life. This paper presents research on the dimensions of object relations in people with ASD, which represent the resolutions of the separation-individuation process, in order to shed additional light on the characteristics of the relationships of such people. Based on the results, suggestions are made for designing professional support for people with ASD in order to promote social relatedness and social inclusion.

Autism Spectrum Disorder

Autism is a neurological condition resulting from deficits in certain brain functions, which is reflected in persistent deficits in social communication and interaction, as well as in patterns of behaviour, interests or activities (American Psychiatric Association, 2022; World Health Organization, 2018).The modern definition of autism spectrum disorder (ASD) is based on modern classifications of mental disorders, which state that autism is manifested by a spectrum of varied and complexly related deficits. The first set of deficits relates to social communication and social interaction. It manifests itself as difficulties in making contact, inadequate responsiveness to other people's initiatives, reduced interest in interacting with others, inadequate social relationship initiation, lack of reciprocity in communication, poorer integration of verbal and non-verbal communication, and poorer adaptation behaviour to different social situations. The second set of deficits relates to behaviour, interests and activities. It manifests itself as repetitive and stereotyped movements, use of objects in an unusual and repetitive way, stereotyped and repetitive speech, rigid thinking and behaviour, a tendency towards routines and rituals, preoccupation with an

area of interest that may be unusual, and unusual responses to sensory stimuli (American Psychiatric Association, 2022; World Health Organization, 2018). Today, the quest for explanations that could provide an insight into the prevalence of autism is mainly focused on genetics and the environment, whereas in the past, such explanations were more frequently pursued in the field of behavioural psychology. ASD is genetic and many authors have reported specific brain functioning in people with ASD, such as synaptic abnormalities (Gialloreti et al., 2016; Giovedi et al., 2014), abnormalities in the cerebellum (Rogers et al., 2013), and abnormalities in brain development and structure, such as an enlarged amygdala in the right hemisphere, which is the main control centre for initiating relationships (Schore, 2013). Atypical functioning of the 'social brain' in people with ASD may also indicate a disruption of social motivational mechanisms and may constitute social interaction as a primary deficit in autism (Chevallier et al., 2012). Diminished social motivation may hinder people with ASD from preferentially orienting themselves to the social world, from seeking and taking pleasure in social interactions, and from working to foster and maintain social bonds (Chevallier et al., 2012). A study investigating reward processing in people with ASD using functional magnetic resonance imaging and comparing the results with people without ASD yielded mixed results (Clements et al., 2018). This means that social motivation in people with ASD is certainly impaired to some extent, but it is not so simple. The brain function of people with ASD is undoubtedly atypical and different, but researchers are yet to determine the exact causes of these changes and how they ought to be interpreted (Nadeem et al., 2021). Ozonoff and Iosif (2019) and Parmeggiani et al. (2019) emphasise that a delay in language development, linguistic and communication features, as well as special interaction in relationships with other people represent the first signs of autism, which require a proper response in order to improve the development outcomes. Emotional problems such as anxiety and depression, and disruptive behaviour such as restlessness, tantrums, aggression, self-aggression, stereotyping behaviour, defiant behaviour, etc. are also common (Attwood, 2006; Nadeem et al., 2021). Elmose (2020) finds that anxiety management in people with ASD is an important factor in teaching social skills, which is why such an emotional condition needs to be properly addressed in order to achieve progress in the field of social interaction. The difficulties that people with ASD exhibit in social relatedness in various areas may cause social isolation and loneliness in adolescence and adulthood, which tend to be more prevalent in people with ASD than in people without ASD (Elmose, 2020). This greatly affects their quality of life and social inclusion. Therefore, it is important to know how to strengthen social relatedness skills in people with

ASD. Other disorders and deficits in different areas are an important factor in people with ASD when overcoming social deficits. Such disorders and deficits include attention deficit hyperactivity disorder, cognitive disorders, impaired abilities and developmental delays, motor movement and coordination problems, neurological problems, obsessive-compulsive disorder, etc. (American Psychiatric Association, 2022; World Health Organization, 2018). Nadeem et al., 2021) and must also be addressed if social skills are to be improved. Estimates as to the prevalence of ASD vary, but it is understood to be on the rise. Prevalence estimates range from 1% to 2.6% of children in the general population (Hansen et al., 2015). According to DSM-5-TR (2022) data, between 1% and 2% of the global population has ASD. Based on statistical data published by the Centers of Disease Control and Prevention (USA), 1 in 150 children were diagnosed with ASD in 2000, while the rate increased in 2010, as the diagnosis was identified in 1 in 68 children (Christensen et al., 2019). The most recent data for 2018 show that, when comparing diagnostic records of 8-year-old children, 1 in 44 children in the US was estimated to have ASD (Maenner et al., 2021). Now and in the future, the increasing prevalence of autism poses and will continue to pose a number of challenges related to professional support provided to people with ASD in the fields of education, healthcare and social services. A good understanding of the way people with ASD function in the social domain will remain crucial for devising a proper response to the need for support in social relatedness. The challenge of how to support children with ASD who show basic social relatedness deficits needs to be addressed so that social inclusion of children with ASD at schools can be made a reality. The need for proper professional support, the empowerment of professionals, relevant research and the cooperation of various disciplines to promote social inclusion and reduce inequality at all levels of the Slovenian education system, from preschool to university education, is often highlighted, as stated by Kovač Šebart et al., 2021, and Marjanovič Umek, 2021.

Factors Contributing to Effective Professional Support for People with ASD

Professional support provided to people with ASD focuses on different areas and depends on the various deficits, e.g., teaching different types of behaviour, reducing anxiety, social and communication skills, emotional support, coping with disturbing sensory stimuli, etc. Several types of interventions are based on teaching skills (e.g., ABA – Applied Behaviour Analysis) and structuring the social environment (e.g., TEACCH – Treatment and Education of Autistic and

Related Communication Handicapped Children), while different types of interventions focusing on relationships also represent an important aspect of support (McInnis et al., 2020; Rehberger, 2018). It is important to choose the appropriate intervention based on the area of difficulty exhibited by people with ASD, while at the same time adapting to the individuals concerned and their entire families, as well as adopting a personalised approach taking into account the individual's social environment (Christensen et al., 2019; Crowell et al., 2019; Galpin et al., 2017; Gardiner et al., 2014; Lord et al., 2020; Nadeem et al., 2021; Rehberger, 2018). The question, therefore, is not whether professional support ought to be based on relationships or skills or other areas, and one should not adopt a one-size-fits-all approach. Rather, the support needs to be adapted and dynamic, and should respond to the multitude of characteristics typical of individuals with ASD; furthermore, specialists should integrate every tool available to them at different stages of development, in order for the support to be more effective (Lord et al., 2020). When planning professional support promoting social relatedness in people with ASD, it is important to note that child-parent interactions may exacerbate deficits in the social domain and threaten developmental outcomes (Crowell et al., 2019), so planning is important for the application of interventions addressing this area. When planning professional support for the interaction between a child with ASD and their parent, attention should be paid to stress and depression in such families, which may significantly impede the effectiveness of such interventions (Rehberger, 2018; Van Esch, 2019). Also important are other parental traits that represent a distinctive phenotype due to genetic autism deficits passed from parents to children (Crowell et al., 2019). There is no effective intervention that is able to address the issues of all people with ASD, nor is there a treatment that would cure autism, but there are professional support models being developed that adapt to the needs of the individual and their social environment. Over the last twenty years, new-generation professional support has been developed, such as integrative intervention models combining behavioural psychology and developmental science. These models focus on the early stages of child development in the areas of initiating relationships and learning in a naturalistic setting by considering the requirements of each stage of development (Prizant et al., 2003; Rogers & Dawson, 2010; Schreibman et al., 2015). Such interventions are referred to as Naturalistic Developmental Behavioural Interventions (NDBI). The understanding of the more specific features related to the individual dimensions of object relations and developmental processes may provide new insights in this field and complement the existing developmental behavioural models from early childhood onwards in order to meet every challenge that lies ahead in the field of social relatedness of people with ASD.

Object Relations Theory and the Separation-Individuation Process

The Object Relations Theory is an important area of psychoanalytic developmental psychology focusing on the relationship as the building block of psychic structure. Margaret Mahler and colleagues (1975) made an important contribution to the development of the Object Relations Theory by defining the separation-individuation process, which culminates in achieving psychological autonomy. Psychological autonomy may be understood as the result of the consolidation of individuality and uniqueness developed by an individual when the developmental separation-individuation process runs smoothly (Jones et al., 2003). Achieved psychological autonomy allows for reciprocity in social relationships between equal partners and is the foundation of satisfying relationships (Praper, 1999). The separation-individuation process takes place in the following sequence of phases during the child's early development: the autistic phase (the first six weeks of life), the symbiotic phase (from six weeks to six months of age) and the separation-individuation phase (from six months to three years of age), which comprises the following four sub-phases: differentiation, practising, rapprochement and object constancy. The process ends in a psychological birth at the age of three. Mahler (1987) describes the period between the child's birth and up to their first four weeks of life as a period during which infants are protected from external stimuli and operate in a closed system, concentrating on satisfying their needs. This is why this period of time is called the autistic phase. Upon reaching two months of age, the infant enters a symbiotic phase with the object, who acts as his or her caregiver. During this phase, the infant experiences oneness with the object and is unable to differentiate between the self and the object (Mahler, 1987). The mother, who is close to the child and takes care of it, encourages the child to establish contact and form a relationship. The first smile, which typically occurs at two months of age, is an indicator of development signalling that the infant is leaving the autistic phase and moving towards the symbiotic phase. This marks the beginning of an important internalisation process leading to the creation of the psychic structure (Praper, 1999). At six months of age, children first begin to differentiate between themselves, others and their mothers, and at ten months of age, the newly acquired abilities in the field of motor movement mean that children are able to gain new experiences. Children explore their environment, separate themselves from the object and experience separation anxiety. This phase is succeeded by the practising phase, during which the child's active role comes to the fore. By gaining new experience and obtaining reassurance and encouragement from the object, children build on the basic trust

in themselves and in others that they acquired during the symbiotic phase, and are able to develop their ego functions and identity in terms of acquiring a sense of their own abilities. When children practise, explore and experiment in their immediate environment, they need their mother to be present in their field of vision and available to them, as and when needed. The quest for the mother's support and the renewed closeness to the mother, which occurs when children reach the state of symbiosis once again, results in a sense of satisfaction and provides children with a new energy to continue practising. This period is known as the phase of rapprochement and is marked by the occurrence of separation anxiety, which happens when the child experiences the fear of losing the object and its affection (Praper, 1999). If the object provides emotional support and simultaneously creates a supportive environment conducive to new social interaction, children are able to develop their autonomy. At the same time, children develop their individuality, which reaches constancy at the age of three when they become an individual (Mahler et al., 1975). As an individual, the child initiates reciprocal relationships being aware of his or her own identity, which results in social relatedness and satisfying relationships, without fear of losing their sense of self (Praper, 1999).

Factors in the Resolution of the Separation-Individuation Process

Cognitive development, which largely enables object constancy (Praper, 1999), and environmental influences in terms of the child's interaction with the environment in early childhood (Tierney & Nelson, 2019) play a key role in the process of separation and individuation. Optimal parenting represents an appropriate supportive environment that offers secure attachment and manifests itself as sensitivity to the child's needs, especially on the part of the mother. It plays an important role in socio-emotional development, behaviour regulation, emotion and social functioning, and is an important determinant of appropriate symbiosis, attachment and the derived separation-individuation process (Beckwith et al., 1999; Ong et al., 2018; Pallini et al., 2018). Psychosocial experiences in early childhood, which occur in the mother-child interaction and are marked by the child's neurological predispositions and the active participation of both mother and child, influence the separation-individuation process and the formation of brain structure, which explains problems in adulthood (Tierney & Nelson, 2019). Parenting styles such as affectionate constraint, affectionless control and neglect, which are also manifested in unresponsiveness to the child's needs, are factors that retard development (Mayuri et al., 2015). Overprotection, reflected in too

frequent warnings, keeping the child in symbiosis and preventing practising, is also a common obstacle to the completion of the separation-individuation process (Žvelc, 2011; Kins et al., 2012). If inadequate parental care is compounded by the child's biological predispositions, the developmental outcome can be significantly compromised. Symbiotic merging, separation anxiety, narcissism, egocentrism, fear of engulfment and social isolation are dimensions of object relations that can be identified in people when there are complications in the separation-individuation process (Žvelc, 2010; Žvelc & Berlafa, 2015). Such complications can jeopardise mental health and lead to a pathological personality structure. If developmental complications arise when a child enters the developmental period of symbiosis, they can lead to psychotic personality organisation, while complications when the child moves out of symbiosis can result in borderline personality organisation and complications in the separation-individuation process can result in neurotic personality organisation (Mahler, 1987). Such problems hinder interpersonal cooperation and social integration, which have a significant impact on quality of life.

The Separation-Individuation Process in People with Autism Spectrum Disorder

The separation-individuation process in people with ASD is sometimes combined with aggravating factors on the part of the child and in the environment. The aggravating factors on the part of the child include deficits in social communication and interaction (American Psychiatric Association, 2022; World Health Organization, 2018), which in themselves suggest the possibility of complications in the developmental separation-individuation process. Research shows that children with ASD do develop early attachment, but to a lesser extent. This attachment is established with the mother, but the quality of the attachment may be unusual, different and sometimes even poor. This attachment type has more signs of insecure attachment with children being less socially responsive (Crowell et al., 2019; Dissanayake and Crossley, 1997; Grzadzinski et al., 2014; Kobayachi, 2000; Schore, 2013; Volkmar et al., 2005). The biological predispositions of people with ASD should not be ignored here, as they have a detrimental effect on social motivation for social relatedness (Chevallier et al., 2012), which can also hinder attachment and object relations, as well as the separation-individuation process itself. Aggravating factors can also be found in the environment in terms of parental reactions to the child. Responsiveness to the needs of the child with ASD and direct verbal communication relating to the child's interest are the two key factors that influence social

and communicative abilities (Ginn et al., 2017; Zlomke, et al., 2019), thus fostering separation and individuation in people with ASD. Parents find it difficult to meet the above two conditions because they are hindered by the stress and depression that are typical in parents of children with ASD and related to the general characteristics of people with ASD and their disruptive behaviour (Rehberger, 2018; Van Esch, 2019; Zaidman-Zait et al., 2014; Zlomke et al., 2019). Doussard-Rousevelt et al. (2003) state that early communication between a mother and a child with ASD is rather directed away from the child's attention and does not meet the child's interest. Kobayashi (2000) also highlights the mother's inability to recognise and respond to the child's desire for attachment, as the child's responses are different and less intense than those of other children. Different parental characteristics, which to some extent indicate that the parents themselves have ASD, may further complicate bonding with the child (Crowell et al., 2019). The characteristics of a child with ASD have a significant impact on the interaction with the mother and father in early childhood, while parental behaviour has a significant impact on the child's behaviour and development (Crowell et al., 2019). Here, the characteristic functioning of the child with ASD is coupled with unconstructive parental responses, which are mutually reinforcing and result in dysfunctional dynamics that can undermine object relations and the separation-individuation process (Burrell & Borrego, 2012; Crowell, et al., 2019). The fact that the separation-individuation process and the establishment of object relations is impeded in people with ASD can be indirectly inferred from a study by Lugnegård et al. (2012), which showed that half of people with ASD have personality disorders, further confirming that the separation-individuation process is impeded in people with ASD. According to Mahler (1987), the pathology of personality structures, which includes personality disorders, is the result of an impeded separation-individuation process, in which development is hindered at the moving-out-of-symbiosis phase. Mahler et al. (1975) suggest that symbiosis and attachment alone are clearly not enough to promote the development of separation and individuation in people with ASD towards the formation of their own identity and autonomy for adequate social relatedness, because, as Elmose (2020) notes, adolescents and adults with ASD are more socially isolated. The World Health Organization (2018) also noted that people with ASD typically find it more difficult to initiate relationships outside the family, whereas attachment within the family or a couple is not as problematic. Thus, symbiosis is established. However, complications arise when moving out of symbiosis, which may explain the social isolation and difficulties in establishing relationships in social groups. Based on the above theoretical background, we hypothesised that differences in the characteristics of object

relations in people with ASD compared to the characteristics of object relations in people without ASD are reflected in a greater expression of disturbances in object relations, especially in the more pronounced dimensions of greater social isolation and symbiotic merging.

Method

The research was conducted using quantitative descriptive analysis and the causal-non-experimental method.

Sample

The experimental group sample included 38 adults aged from 18 to 58 years with normal intellectual abilities and with ASD, and 100 adults aged from 18 to 52 years with normal intellectual abilities and without ASD. The sample was drawn from educational programmes for people without intellectual disabilities. The questionnaire itself included a question on the presence or absence of ASD. The experimental and control groups were matched for age, gender and intellectual ability, which was ensured by capturing the sample in comparable social environments and assisted by a general data survey. Nevertheless, there were some differences between the two groups in the age and gender structure. The sample representing the control group was therefore weighted accordingly so that its gender and age structure (two age groups) is comparable to that of the experimental group. Table 1 shows the gender and age structures of the two samples before weighting. Also shown are the values with which the sample of subjects without ASD was weighted. The analysis below is based on the weighted data. Due to the rounding of the weighted data to whole numbers, small discrepancies may arise in the sums of frequency values.

Table 1

Weighting of the control group by age and gender

GENDER AND AGE	Persons with ASD		Persons without ASD		Weighting used for the control group
	Number	Percentage	Number	Percentage	
Men aged up to 20 years	13	34.2%	26	26.0%	1.316
Men aged 21 years and over	10	26.3%	24	24.0%	1.096
Women aged up to 20 years	4	10.5%	31	31.0%	0.340
Women aged 21 years and over	11	28.9%	19	19.0%	1.524
Total	38	100.0%	100	100.0%	1.000

In the experimental group, after weighting, 23 (60.5%) of the subjects were men and 15 (39.5%) were women. Their mean age was 24.47 years, with a standard deviation of 9.942. In the control group, after weighting, 61 (61.0%) of the subjects were male and 39 (39.0%) were female. Their mean age was 25.02 years, with a standard deviation of 9.923. The experimental group consisted of 20 (52.6%) secondary school students, four (10.5%) university students, six (15.8%) employed persons and eight (21.1%) unemployed persons. The control group consisted of 48 (48%) secondary school students, 22 (22%) university students, 29 (29%) employed persons and one (1%) unemployed person.

Research instrument

For the study, we used an online survey consisting of nine demographic questions and the Test of Object Relations (*Test objektnih odnosov*, Žvelc, 1998). The Test of Object Relations is consistent with the theory of Margaret Mahler et al. (1975). It measures relationships with significant others and shows the specific resolutions of the separation-individuation process that are manifested in interpersonal relationships during adulthood. The survey is a self-assessment tool, in which respondents rate the following six dimensions of object relations on a five-point scale: symbiotic merging, which refers to the weak differentiation between self and others (an example of a statement in the test: "Sometimes in relationships with others I begin to lose my sense of self"); separation anxiety, which indicates difficulty in tolerating separation from significant others (example : "If the person I love left me, my life wouldn't have any meaning anymore"); narcissism, which describes an individual's grandiose and omnipotent experience of the self (example: "I am going to achieve more in life than other people"); egocentrism, which refers to using and exploiting other people for one's own needs (example: "In a relationship I expect my partner to always accommodate me"); fear of engulfment, which refers to individuals who fear they will lose their own identity (example: "Sometimes I am afraid of another person getting too close to me"); and social isolation, which refers to avoidance and lack of relationship with others (example: "I am not close to anyone"). A version of the test consisting of 48 items was used in the study. It has satisfactory internal consistency and construct validity (Žvelc, 2007, 2008, 2011; Žvelc & Berlafa, 2015) and has been used in several studies in different countries (Barkhuizen, 2005; Dajčman, 2014; Kobal, 2002, 2008; Nettmann, 2013; Pahole, 2006; Pavšič Mrevlje, 2006; Restek-Petrović et al., 2012; Rogič Ožek, 2004; Štirn, 2002; Uršič, 2014; Žvelc, 2007, 2010b, 2011; Žvelc & Berlafa, 2015).

Research procedure

The data collection took place from May 2021 to the end of 2021 using an online survey. The average time to complete the survey was 15 minutes. The data collection for the control group was carried out by sharing the survey link using the snowball method: we primarily targeted principals, secondary school counsellors and teachers, boarding school staff, university professors and faculty student office staff, asking if they could share the survey among their students and other adults. We asked them to approach individuals who were willing to take part in the study, were of legal age and had normal intellectual abilities. In addition, we asked participants to share the survey with their friends, acquaintances, partners and others.

When collecting data for the experimental group, we turned to institutions for people with special needs, employees of healthcare institutions and associations for people with ASD. We asked their staff to approach adults with ASD and ask if they would like to take part in our survey. Diagnoses of people with ASD and other information were obtained from their documentation (expert opinions, statements for guidance of people with special needs and medical records). With their consent, we visited institutions for people with special needs and administered the questionnaire electronically, while remaining available to clarify any questions they did not understand. Employees of healthcare institutions and associations for people with ASD were given detailed instructions on how to administer the questionnaire and how to be available for any questions.

The data obtained from the survey were processed using SPSS statistical software. In cases where a small number of responses were missing (one missing response), the missing value for each unit was replaced by the average of the other indicators. The reliability coefficient or internal consistency of each measurement tool was calculated for each test. Differences between the experimental and control groups, as well as other differences taken into consideration, were tested with a t-test for two independent samples.

Results

First, Levene's test was performed to verify the hypothesis of equality of variances. All of the variances were equal except in fear of engulfment. For this dimension, the appropriate t-test correction was applied, which gives a result identical to the corresponding non-parametric test (Welch test). The results of the t-test are shown below (Table 3). We first present the reliability of the measurement scale and then the results obtained for the object relations dimensions.

Table 2

Reliability of the basic measurement scales for the basic dimensions in the Test of Object Relations

BASIC DIMENSION	Total number of respondents (N)	Number of items (I)	Cronbach's alpha
Symbiotic merging	138	8	0.806
Separation anxiety	138	8	0.825
Narcissism	138	8	0.874
Egocentrism	138	8	0.804
Fear of engulfment	138	8	0.816
Social isolation	138	8	0.885

Table 2 shows that the Test of Object Relations is reliable, i.e., internally consistent across all basic and aggregated measurement scales (all Cronbach's alpha coefficients calculated are greater than 0.8).

Table 3

Differences between the two groups in the basic dimensions of the Test of Object Relations, calculated using the t-test

BASIC DIMENSION	Persons with ASD (N)	Persons without ASD (N)	Average (A)	Standard deviation (SD)	t-test	
					t	sig.
Symbiotic merging	38		2.51	0.734	3.058	**0.00**
		100	2.10	0.682		
Separation anxiety	38		3.09	0.882	3.432	**0.00**
		100	2.54	0.810		
Narcissism	38		2.19	0.866	-0.762	0.45
		100	2.31	0.815		
Egocentrism	38		2.12	0.641	1.085	0.28
		100	1.99	0.675		
Fear of engulfment	38		2.21	0.866	0.937	0.35
		100	2.06	0.652		
Social isolation	38		2.57	0.852	1.945	**0.05**
		100	2.25	0.876		

The abbreviation 'sig.' stands for 'significance' and represents the level of statistical significance in Table 3. Where the test values are statistically

significant (sig. is less than or equal to 0.05), the sig. value is underlined and in bold type.

Table 3 shows that there are statistically significant differences between the experimental and control groups in the dimensions of symbiotic merging (sig. = 0.00), separation anxiety (sig. = 0.00) and social isolation (sig. = 0.05). There are no statistically significant differences in the other dimensions. It follows that one can state with certainty that people with ASD are more likely to experience symbiotic merging, separation anxiety and social isolation than people without ASD.

Discussion

The results confirm the hypothesis that people with ASD are characterised by greater disturbances in object relations compared to people without ASD in the dimensions of symbiotic merging and social isolation. In addition to the dimensions defined in the hypothesis, the results also show that another dimension, separation anxiety, is more characteristic of people with ASD. The characteristic relationship dynamics of people with ASD can be described as follows. Compared to people without ASD, people with ASD are more likely to differentiate poorly between themselves and other people, to merge and feel one with others, to lose themselves in relationships, to desire and yearn to establish symbiotic relationships, or to fear being abandoned by a significant other, while being distrustful, avoidant and alienated. These findings are consistent with and complement the findings of other authors (Crowell et al., 2019; Dissanayake & Crossley, 1997; Grzadzinski et al., 2014; Kobayachi, 2000; Volkmar et al., 2005) who suggest that people with ASD develop early attachment, but to a lesser extent. This attachment is established with the mother, but the quality of the attachment may be unusual or different, and sometimes even poor. This attachment type has more signs of insecure attachment, and people with ASD who exhibit this attachment type are less socially responsive. With the description outlined above, the present research defines the relationships of people with ASD more precisely, suggesting that the separation-individuation process is disturbed when moving out of symbiosis, as proposed by Mahler et al. (1975) and, indirectly, by Lugnegård et al. (2012). Thus, the separation-individuation process in people with ASD is not carried through to the point of identity formation and autonomy, but rather stalls and stagnates when moving out of symbiosis during the sub-phases of differentiation, practising and rapprochement. That said, the results should be interpreted with caution, as one cannot conclude that the parents or the mother are solely responsible for

the relationship characteristics of people with ASD described above. Today, the psychoanalytic theories of the 1960s claiming that autism is caused by 'refrigerator mothers' have been definitively refuted (Crowell et. al., 2019) and we now know that the typical functioning of individuals with ASD is an interplay of many factors based in biology. These biological predispositions influence social motivation and thus social interaction (Chevallier et al., 2012), attachment, and the separation-individuation process described in the results of our study.

Conclusion

The findings of the present study provide an additional perspective and show the characteristic relationship dynamics in people with ASD, who can be described as being trapped in dependent relationships, fearing the loss of a significant other, and being more alienated in relationships. The results serve as a basis for specific additions to developmental-behavioural support services in order to aid the separation-individuation process and promote autonomy to strengthen the skills needed for social relatedness and social inclusion, thus providing equal opportunities to all, including to people with ASD. In line with the results of the research, there is a need to promote development when moving out of symbiosis in the sub-phases of differentiation, practising and rapprochement, which can complement existing professional support at pre-schools and schools. One limitation of the study was that a single test was used to measure both the object relations and the resolution of the separation-individuation process. To substantiate the findings, it would be reasonable to carry out a study on a larger sample and to examine parenting styles to further confirm and explain the complications when moving out of symbiosis. Another limitation was that the data collection procedure was slightly different for the control and the experimental group, which was a consequence of the need to help the people with ASD to better understand the test. It would also be useful to examine first-hand what people with ASD experience when initiating relationships, in order to gain a holistic insight into their specific social functioning. In this way, one could better design professional support fostering social relatedness and social inclusion and plan educational strategies accordingly.

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Biographical note

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Jan L. Plass, Richard E. Mayer and Bruce D. Homer (Eds.), *Handbook of Game-Based Learning*, The MIT Press, 2020; 600 pp.: ISBN: 978-0-2620-4338-0

Reviewed by Matej Zapušek[1]

The book 'Handbook of Game-Based Learning' is a fundamental work in its field. It provides a systematic and detailed insight into the theoretical foundations, the state of the art in the field, guidelines for research, considerations on design principles, and examples of good practice in the use of educational games in different subject areas. Unlike other books focusing on game development or best practices, 'Handbook of Game-Based Learning' stands out for its reliance on empirical evidence and its foundation in psychological and learning sciences theory. The research field of game-based learning (GBL) investigates the use of games and game elements in education to support different aspects of learning. Games have numerous characteristics that can be used effectively in the learning process. They allow learners to have authentic experiences in a safe and controlled environment where they can test hypotheses, experiment, and learn from mistakes. Active participation enables the acquisition of in-depth knowledge and the development of problem-solving skills and critical thinking. While playing the game, learners receive immediate feedback and can effectively identify gaps in their knowledge. The data collected about the learner during gameplay can be used to address their specific learning needs. The use of games can also support the collaborative aspect of learning, teaching social skills, responsible and ethical communication skills, teamwork, task sharing and leadership skills.

This book can be a valuable resource for a variety of stakeholders in the learning process, as understanding the fundamental principles of learning and current research trends in the field is crucial. Teachers will have access to more tools and strategies to implement ideas from modern learning theories

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to improve the learning process. Knowing the criteria for selecting appropriate games can effectively support specific learning objectives and create a dynamic, interactive, and stimulating learning environment. The use of games in the learning process opens up new possibilities for the observation of students and the formative and summative assessment of knowledge, as the collection and analysis of data generated during learning can provide a more comprehensive picture of an individual student's current level of knowledge. This allows lessons to be more individualised, the learning process to be adapted to current needs, and progress to be assessed. Parents need to understand this area to understand better the role of games in their children's learning and select quality games that align with the family's values. Understanding game-based learning is important for education professionals and researchers as it allows them to keep up with current educational trends and innovations. By monitoring research, best practices, and new technologies in game-based learning, professionals can improve their teaching approaches, formulate strategies and recommendations, and thus ensure quality education. Finally, knowledge of game-based learning is also extremely important for students, as it enables them to take advantage of the benefits and opportunities that games offer in learning. When students understand how games can improve their motivation, engagement, understanding and skills, they can engage more actively in the learning process and achieve better results.

The book is divided into four thematically self-contained sections: 1) Introduction to Game-Based Learning (GBL), 2) Theoretical foundations of GBL, 3) Design of educational games, and 4) Applications of GBL. In the first section, the book introduces the basic concepts of game-based learning, which are discussed from four interrelated perspectives: motivational, cognitive, affective, and socio-cultural. Under the motivational aspect, the characteristics of games that positively influence learning motivation are presented. Among these, the authors highlight those that influence motivation through the implementation of a reward system, the meaningful use of different game mechanics, the inclusion of engaging activities and a design that conceptualises errors as a necessary step in the learning process. They argue that this is particularly important as it encourages exploration, risk-taking, and trying out new strategies without severe consequences, creating the basis for self-regulated learning. In terms of the cognitive aspect, the book looks at game characteristics that can be used to implement meaningful and relevant learning situations that can be adapted to the specific needs of the learner. It then looks at the affective aspect by explaining how positive emotions improve the player's attention, decision-making skills, creative problem-solving, and related higher cognitive activities,

thus enhancing the learning effect. Finally, the socio-cultural aspect is presented, focusing on developing communities created through games as one of the most important aspects of such learning. In this respect, learning is realised in the interaction between players who can construct shared knowledge and apply it within cultural norms and about others. The authors then introduce the concept of play, highlighting its main principles and its use in the context of education. In this context, it encompasses more than just entertainment and amusement, as it positively impacts the inner motivation to learn and enables self-actualisation. The authors argue that such learning enables the application of a poly-theoretical approach that combines the principles of different learning theories to support learning, thereby increasing educational effectiveness. They introduce information processing theory, behavioural learning theory, cognitive constructivism, and social constructivism, among others. They also look at how modern technologies offer new opportunities for the realisation of learning through games. In this context, they emphasise that to realise effective learning through games, it is important that both aspects – learning and enjoyment – are represented in game-based learning activities. The use of games based on digital technologies is seen as a particularly effective means of implementing the principles of learning through games, as they enable effective storytelling and the implementation of opportunities for social interaction. The authors then look at the concept of 'engagement' in the context of learning through games. This is extremely important as it has a positive effect and forms the basis for the learning process. It influences interest and motivation for learning, perseverance in solving more complex tasks, a better understanding of the subject matter and the acquisition of conceptual knowledge, which positively impacts the achievement of learning objectives. The authors present different types of engagement – emotional, cognitive, and behavioural – and analyse other factors that influence it. In this context, they consider the aspect of the player in terms of personal characteristics such as attention, self-regulation, and self-efficacy, as well as the aspect of the system involved in the game, which has its own characteristics such as adaptability, feedback, included challenges or opportunities for social interactions and the active role of the player. Particular attention is paid to the importance of a game design that promotes intrinsic motivation and aims to maintain engagement throughout the game. At the end of the first section, they present practical implications that serve as recommendations for game developers who wish to implement aspects of engagement appropriately. They emphasise the creation of dynamic game environments with challenges, interactions and feedback, the inclusion of measuring the level of player engagement as part of the system's evaluation strategy,

and the creation of games that are relevant and adapted to the demands and needs of the target audience, thereby creating a positive emotional connection of the player with the game.

In the second section, the authors present theoretical foundations that summarise important research findings in the field of game-based learning, building on the classification of the first section. In the context of research focusing on the cognitive aspect of GBL, they present the fundamentals of cognitive processing of visual and verbal information during gameplay and its effects on learning. These are based on the principle of two data intake channels: limited capacity and active processing. From these theoretical foundations, they derive rules for designing educational games that promote the fundamental processing necessary for learning and the unnecessary processing that hinders it. They also show how games can be used to learn different types of knowledge (factual knowledge, conceptual knowledge, procedural knowledge, strategic knowledge, attitude formation) and describe the key cognitive components of learning with games: playing the game, which illustrates the lesson; changing the knowledge, which represents the learning; and assessment, which reflects progress toward learning objectives. An important contribution of the book is the classification of approaches in existing research that addresses the cognitive consequences of the use of games in education. These are divided into those examining the learning effect of using a particular game element, comparing the cognitive impact of using specific and general games, and comparing the learning outcomes of using games versus traditional learning approaches. The authors then focus on aspects of learning with games that relate to emotions. The basic idea is the key role of emotions in an individual's behaviour and the resulting improvement in learning effectiveness. Games can influence the arousal of positive emotions in individuals in various ways, for example, through an interesting story, game mechanics, good graphic design or even sound design, thereby improving their attention, decision-making ability, creative problem solving, and activities related to higher cognitive processes. Studies have also shown that the learning effect is improved by using agents that can recognise the player's emotions and react accordingly. The authors have developed a classification system for using emotions in game learning that uses the dimensions of valence and activation but also considers other dimensions, such as intensity, duration, and utility of emotions. This system categorises game characteristics in terms of their impact on motivation, task performance, and learning outcomes. This section also addresses the use of games in learning or the integration of gamification elements into the learning process as a strategy to motivate students in educational and organisational contexts. The authors present research showing that games can

successfully attract and sustain attention and explore how these characteristics can be appropriately utilised in an educational context. They focus on methods that can be used to achieve intrinsic motivation and autonomous engagement as the ultimate goal of motivational efforts. In defining these methods, they draw on 'self-determination theory', which states that people tend to engage in activities that satisfy three basic psychological needs: Autonomy, Competence, and Relatedness. This is important in understanding how games can be used to satisfy psychological needs. This can contribute to decision making when designing games or gamification elements for use in educational contexts and consequently increase their motivational potential. In presenting the theoretical foundations related to the socio-cultural aspect of using games in education, the authors present research examining how the realisation of social interactions in games can contribute to learning. They focus on mechanisms of mediation – the transformative process in which an individual internalises tools, practices and cultural patterns of the community, modelling – cognitive or digital practices and behaviours of experts observing and imitating novices, creating an understanding of how new behaviours or skills are performed, and teaching – practices based on Vygotsky's concept of the zone of proximal development, in which an expert supports and guides a novice, helping them to acquire knowledge and establish themselves in the community. One of the key points is that games are a platform that provides the opportunity to implement these forms of social interaction and enable the construction of a social identity. When players master the game mechanics and showcase their skills in the community, they receive recognition and validation, which is crucial for building self-esteem and identity.

In the third section, the authors deal with various aspects of the design of educational games. This section provides a comprehensive overview of the progress made in the field of learning with games, focusing mainly on the development of theoretical frameworks for the use of games in education and pointing out the key challenges that still need to be addressed in this area. Among other things, they emphasise the importance of building a support system in game mechanics that can facilitate the provision of feedback and advice. Research is presented that shows that direct guidance in the form of explanatory information is more effective for providing feedback than minimal guidance with corrective feedback, which is common in most educational games produced to date. In terms of guidance, the importance of a human mentor providing personalised feedback and support according to the learner's needs and interests is emphasised. The authors discuss using educational games to promote self-regulation and self-reflection, allowing learners to monitor and

control their activities, which in turn affects the efficiency of learning. In this context, they present different cognitive, affective, metacognitive, motivational, self-regulatory and reflective processes that the learner can carry out. They emphasise the importance of emotional self-regulation, which can affect the maintenance of intrinsic motivation to complete tasks. They also included a diagnostic worksheet, a valuable tool for evaluating the information obtained, improving understanding of the problem, monitoring the problem-solving process, and making informed, evidence-based decisions. This section presents the importance of adaptability and personalisation in educational games and their impact on individual learning. Examples of games are presented in which adaptability is considered in various ways – by dynamically changing the level of difficulty, considering the player's prior knowledge and cognitive abilities (planning, reasoning, working memory), assessing specific learning variables and adapting to maintain an appropriate level of challenge. Examples are also used to describe different methods of personalisation, such as considering individual characteristics and needs of the learner, providing learning material that suits their learning style, choosing the order in which to go through the learning material, and different ways to ensure a sense of belonging and motivation. The authors argue that the adaptation and personalisation strategies presented can stimulate intrinsic motivation, increase engagement, and support self-efficacy, especially when both approaches are combined in games. The section continues with the role of storytelling in educational games. A good story can create a compelling experience and make the learner more engaged in learning. The biggest challenge in game design is the integration of storytelling with interactive elements, as this is a complex and demanding process. However, when done correctly, it can positively impact a better understanding of the topic, better retention of knowledge and the ability to use critical thinking and problem-solving skills. Storytelling can effectively present complex ideas and the relationships between different variables of the problem, helping the learner achieve learning objectives and meet learning needs. In the context of educational game design, the authors emphasise the importance of applying principles for multimedia content creation, such as signalling, redundancy, pre-training, and self-explanation, and their importance for reducing cognitive load and improving learning outcomes. The principles presented are an excellent resource for educators and creators of learning materials who want to create effective learning environments based on game principles or incorporating gamification elements. The authors then discuss the role of collaboration and competition in learning games. They can be conceptualised as alternative types of goal structures within which learners cooperate and behave in

learning activities. Research studies are presented examining the cognitive and affective effects of incorporating collaboration and competition. While some pointed to collaboration and competition as inherent and fundamental aspects of motivation in games, others highlighted negative experiences as competition discouraged some from learning. It can be concluded that the effectiveness of their introduction depends on the learning objectives, the characteristics of the learners, the group configuration and the type of learning activities in which they are used. Three concepts of educational game design that have not yet been sufficiently researched are then presented: the design of elements intended to influence learners' emotions, including musical accompaniment, and the design of game mechanics. The authors explain the concepts of designing game elements and methods that can evoke an emotional response in learners. They emphasise the causal relationship between emotional states and cognitive processes and how theories such as the control-value theory of achievement emotions and the integrated cognitive-affective theory of learning provide a theoretical framework for understanding the effects of emotions on learners. The inclusion of musical accompaniment is discussed in terms of its ability to evoke emotion, its role in achieving learning objectives and creating a sense of inclusion. Approaches to designing musical elements for their use in educational games are also presented. The role of game mechanics is presented in the context of their impact on the emotional state of learners, motivation to learn and the promotion of learning outcomes. Approaches to the design of game mechanics are described, such as balancing challenge and skill, providing choice and intervention for the player, and considering the game context and learning objectives. The third section concludes by outlining the following aspects of educational game design: reward system design, social presence, and identity formation. Reward systems include internal and external elements of reward. Examples of external rewards are points, stars, badges, trophies, etc., while internal rewards are those that directly influence gameplay. The authors discuss aspects of the design of such systems and how they can influence the satisfaction of basic psychological needs and connection with others and the community.

In the fourth section, the authors present concrete examples of the use of learning games in various content areas. They show how the use of games in STEAM provides opportunities to explore and gain authentic experiences that help to understand complex concepts, integrate new ideas into existing knowledge, and progressively increase complexity, enabling the acquisition of knowledge in Vygotsky's zone of proximal development. Using specific examples of the use of commercial and specially developed educational games

in mathematics, statistics, physics, and biology, they show how games can be used effectively to improve the learning process. They then examine the aspects of using games in language learning. They highlight how games can provide the opportunity to interact with multimodal forms of representation, linking the grammatical form of words and sentences to their meaning and function, which defines their use in different contexts or to achieve different communication goals. In games, learners are confronted with texts that strengthen their reading comprehension and, at the same time, motivate them to engage with them. The design of the games provides immediate feedback that helps the learner to adapt their learning strategy and thus be more effective. The authors emphasise that appropriately designed and implemented educational games have great potential as interesting and effective learning environments for foreign language acquisition and present a theoretical framework for the creation of such games. The authors then address the use of games to improve learners' cognitive abilities, particularly using reinforcement learning, which can be realised through the design of a feedback system. The authors argue that games are an effective learning tool to improve cognitive skills as they can present advanced representations of concepts, thus influencing the ability to generalise knowledge. Despite their promising potential, more research is needed to investigate further their effectiveness, their possible limitations, and the best practices for their implementation. This section then presents aspects of the use of learning games for training and improving employee efficiency. These differ from general learning games in the objectives of the training, which in this case, are focused on improving the efficiency of specific work tasks performed by the employer. Games can be used effectively for this purpose as they can enhance traditional learning approaches in terms of the learner's active involvement in the learning process and thus support further training, the acquisition of problem-solving skills and the achievement of specific target knowledge. Examples of best practices in financial analysis and training in virtual car workshops are presented, demonstrating the success of using games in work environments. They then present the use of games as an effective tool for assessing complex skills such as problem solving and creativity. The authors argue that assessment through games is better than traditional methods as it provides a more accurate assessment of learners' knowledge, skills, and attributes. The chapter emphasises the importance of aligning the learning objectives with the content to be assessed and provides a framework for structuring assessments in multiplayer games. An overview of research in this area is provided, including psychometric aspects and the validity of games as an assessment environment. At the end of the fourth section, the authors examine the use of learning analytics

in educational games. The potential of games to provide insights into learners' behaviour and decision-making processes is discussed, and various methods, such as descriptive statistics, cluster analysis, and factor analysis, are described. They show how different methods can be used at different stages of the game and how an in-depth understanding of the interaction between players, their play patterns and decision-making processes can be gained. Based on this data, adapting and optimising learning experiences is possible.

The book 'Handbook of Game-Based Learning' provides a comprehensive insight into the field of game-based learning, enabling both developers of educational games and those working with learners to gain a structured overview of fundamental concepts, practices, and examples of the effective use of games in the educational process.

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