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Kazalo / Table of Contents

Prispevki / Articles

REVIJA ZA ELEMENTARNO IZOBRAŽEVANJE
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STATISTICAL GRAPHICS IN CZECH TEXTBOOKS: A COMPARATIVE CONTENT ANALYSIS OF TWO PRIMARY-LEVEL EDUCATIONAL AREAS

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Abstract/Izvleček

The aim of the article is to introduce an effective structural and functional model for the socialization and development of these children through group work, implemented in out-of-school education institutions (SFM). The study presents a comprehensive model comprising target, substantive, organizational, procedural, result-oriented, and analytical components. It outlines content and methodological support for socialization and development in various areas, such as naturalistic, tourist, local history, artistic, and aesthetic domains. It also highlights the essential spatial-subject, psycho-didactic, and social conditions required for an inclusive educational environment.

Keywords:
primary education, textbook analysis, content analysis, statistical graphics, charts.

Statistična grafika v češkiх učbenikih: Primerjalna vsebinska analiza dveh izobraževalnih področij na osnovni ravni

V članku predstavljamo analizo trenutnega stanja na področju razvijanja spretnosti rabe statistične grafike v osnovnošolskem izobraževanju na Češkem. Raziskava temelji na kvantitativni vsebinski analizi grafičnih prikazov podatkov v učbenikih in delovnih zvezkih, ki se pogosto uporabljajo pri pouku. Ugotovitve razkrivajo pomembne razlike v pogostosti statističnih grafičnih prikazov med različnimi učbeniki ter v oblikah in vrstah uporabljenih statističnih grafičnih prikazov na različnih izobraževalnih področjih.

Ključne besede:
osnovnošolsko izobraževanje, analiza učbenikov, analiza vsebine, statistična grafika, diagrami.

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Introduction

In an increasingly data-driven world, the ability to interpret visual representations of quantitative data and make informed decisions based thereon are becoming crucial skills. Building and strengthening the skills of data visualisation creation and interpretation are becoming a research topic under the umbrella term of data visualisation literacy (DVL, see Börner et al., 2019). This wider interdisciplinary area should build upon insights gathered in, e.g., graph comprehension or statistical literacy research, since common statistical graphics are a substantial part of data visualisation methods. Fostering data visualisation skills from an early age becomes paramount to empowering students as critical thinkers and informed decision-makers. Despite this, research connecting these skills with primary education is still lagging behind the abrupt development in the field. Recent studies in the primary-level area focus on tangibles and gamification together with a constructivist approach (Gäbler et al., 2019; Bae et al., 2023; Johnson et al., 2023). We must also describe the current state of data-visualisation-related instructions in primary education. One way to assess the current state of this instruction is to inquire about textbooks and workbooks used in primary teaching and to focus on statistical graphics. Although some analyses have already been done in the past (e.g. Alper et al., 2017; Shreiner, 2018; Batanero et al., 2018), we still do not have many insights into the use of statistical graphs in primary-level textbooks, and we lack this insight utterly in the context of the Czech educational system.

The analysis of textbooks used in our inquiry is connected to current curricular changes in the Czech educational system, which reflects the state-wide shift to *new informatics*, following the broader European frameworks (Caspersen et al., 2023): putting the stress on computational and algorithmic thinking together with data skills and disseminating those skills from dedicated ICT classes to other areas and topics of education. These revisions are happening in the Czech context at all educational levels up to secondary school, are carried by *The Ministry of Education, Youth and Sports* (MŠMT) and are aligned with the *Strategy for Education Policy of the Czech Republic 2030+* (EACEA, 2022).

Research focus

Through our research, we decided to answer the following questions: Q1 – How frequent are statistical graphics (SG) in Czech elementary textbooks in two educational areas? as there were no previous studies that would provide insight into the current state of SG usage in Czech elementary textbooks. We are interested in whether SG are present and how often they can be encountered in textbooks.

Based on local state standards for elementary education and relevant curricular documents, *Mathematics and its application* (MAT) is the educational area *(local framework defines nine core educational areas consisting of educational fields and cross-curricular themes)* that should lead children to educational outcomes regarding basic data visualisation skills. The new informatics shift furthermore advocates blending classes and dissolving the borders between areas. The *Humans and their World* (HTW) educational area is a rational choice for introducing data graphics to young learners, as topics include the broad areas of society, history, natural sciences, or homeland studies. Therefore, we decided to pick this area over other possible ones (like *Language and Language Communication*) and compare them against each other to find out whether this blending is already occurring and how common it is to have SG in an area outside MAT.

Together with the analysis of SG frequency, we are interested in their role in textbooks and workbooks and whether these roles differ significantly in selected educational areas: Q2 – Do the graph functions differ in the MAT and HTW areas? We are also interested in the types of SG used in Czech textbooks and whether these types differ in HTW and MAT: Q3 – What are the types of charts presented, and how do the types differ in the HTW and MAT areas? In both cases, the null hypothesis (H0) postulates that there is no significant relationship or difference between the variables under investigation.

Research Methodology

General Research Background

Textbooks are still considered an essential part of the classroom process (Mullis et al., 2012; Son and Diletti, 2017) and often play a dominant role in instruction at the primary education level (Stará et al., 2017). Textbook analysis has been widely used,

with some researchers focusing on the broad category of visuals (Vojíř and Rusek, 2019). Mapping textbooks through content analysis can yield vital insights; hence, we conducted a content analysis of Czech primary-level textbooks selected from the MAT and HTW educational areas.

SG-focused content analysis is still uncommon. Some previous content analyses focused on diagrammatic representations (Liu and Khine, 2016), a different part of the visual communications field, or on specific benchmarks, like gender balance in STEM visuals (Kerkhoven et al., 2016). The more expansive approach of focusing on visuals in general can be limited its provision of insight into the use of statistical graphics, as categorisation and classification can get cumbersome with many types of visuals. An insightful study conducted by Guo et al. (2018) classified graphs as one of the coded groups in their broader classification but included Venn diagrams or pyramid charts under this category.

A few narrowly focused content analyses show that graphs and other data visualisations are present in educational materials (Alper et al., 2017; Shreiner, 2018), and K-12 students in some geographical areas do encounter graphically represented data. The most progressive content analysis of SG in primary education was part of a broader work by Alper et al. (2017) and Chevalier et al. (2018), who focused on a variety of visually represented data, primarily on how abstraction levels in graphic data displays are progressively delivered through classes. They analysed 2600 visualisations, including pictographs and other simple graphic representations of data, but they did not focus on fully developed statistical graphics. Since we have already explored the aspect of progress in visual representation of data in Czech elementary MAT textbooks, in this study, we focus on comparing two learning areas, focusing solely on fully developed statistical graphs (SG).

Sample

For our content analysis, we chose primary-level textbooks, together with workbooks, in the Czech language, intended for the MAT and HTW areas. Only textbooks with a valid note of approval granted by *MŠMT* at the time of the analysis were selected and analysed. This note of approval is a significant marker for the frequency of textbook usage, as only textbooks with the note can be acquired by the school with state financial support.

Textbooks and series from twelve different publishers were also chosen based on consultation with professional subject librarians from *The National Pedagogical Museum and Library of J. A. Comenius*. A total of 182 textbooks were analysed, totalling 2,3452 pages (see Table 1 for more descriptive statistics), a sample covering both educational areas more than amply.

Table 1. Number of textbooks (TB) and pages (PG) analysed in our sample by area and publisher.

	HTW		MAT		Total	
Publisher	TB	PG	TB	PG	TB	PG
ALTER	34	1495	20	1165	54	2660
DIDAKTIS	11	841	15	1209	26	2050
FORTUNA	2	94	0	0	2	94
FRAUS	30	1874	28	1919	58	3793
H-EDU	3	160	0	0	3	160
H-MAT	0	0	15	776	15	776
Nová škola	37	2226	29	1620	66	3846
NŠ DUHA	18	1057	20	1117	38	2174
Prodos	14	794	20	1259	34	2053
Prometheus	0	0	17	1544	17	1544
SPN	16	1207	14	1075	30	2282
TAKTIK	17	1032	17	988	34	2020
Total	182	10780	195	12672	377	23452

Procedures and analysis

As already stated, we are focusing on fully developed statistical graphs – visual units that work as graphic devices as defined by Roberts (Roberts et al., 2013): "Graphical devices that illustrate the relationship between two or more variables using points, lines, or differentiated parts of a whole (e.g., pie graph, line graph, bar graph)", i.e. they are fully developed SG with all the components that constitute it. The presentation of such a graph can take various forms in textbooks; therefore, as an analytical unit, we chose an exercise (a visually delimited part of a textbook content) that uses fully developed statistical graphics.

The rules and codebooks for determining the activity type and graph type were stabilised and discussed. A small exploratory sample of textbooks from both areas was selected and pre-analysed with a fellow reviewer to validate and clarify ambiguous units. This pre-inquiry also informed the *a priori* code book for types of tasks and types of graphs. There is no single referential classification of graph types; therefore, we decided to make use of part of the classification we created for our

previous research (Marek and Maněnová, 2022), which we based on published content analysis and major reference guides from the area: Harris (1999) and Schwabish (Schwabish, 2021). The simplified *a priori* classification uses four main categories based on the main visual elements, using different visual variables: bar, line, point and pie graphs. During the coding, limited units utilising statistical maps were identified, and this category was included *emergently*. In the case of the activity types, we identified three main *a priori* groups: units focused on *creating* SG, *reading* SG, and those *combining* both. This classification proved to be sufficient for our sample and our goals. The statistical analysis was conducted with IBM SPSS Statistics software.

Results

Frequency of statistical graphics

We identified 579 analytical units in our sample, averaging 2.47 exercises with statistical graphics per 100 textbook pages. Two specific publishers were excluded from further analysis as their textbooks and workbooks did not contain a single analytical unit (FORTUNA and H-EDU, totalling five textbooks focused on primary-level financial literacy and ICT). Frequency per 100 pages can be seen in Table 2, while absolute values divided by year and publisher appear in Table 3.

Table 2. Count of analytical units by publisher and area; with per 100-page rates (sorted in descending order by total rate).

	HTW		MAT		Total	
Publisher	Units	Per 100 p.	Units	Per 100 p.	Units	Per 100 p.
TAKTIK	14	1.357	83	8.401	97	4.802
Nová škola	32	1.438	115	7.099	147	3.822
Prometheus	0	0.000	46	2.979	46	2.979
H-MAT	0	0.000	21	2.706	21	2.706
Prodos	2	0.252	43	3.415	45	2.192
FRAUS	41	2.188	41	2.137	82	2.162
ALTER	7	0.468	46	3.948	53	1.992
DIDAKTIS	6	0.713	32	2.647	38	1.854
NŠ DUHA	4	0.378	23	2.059	27	1.242
SPN	3	0.249	20	1.860	23	1.008
Total	109	1.011	470	3.709	579	2.469

Types of tasks and differences between areas

Types of tasks were counted based on the mentioned *a priori* codebook. A chi-square test was performed and demonstrated a significant difference associated with the type of activity (reading/writing/combined) between education areas (MAT/HTW), $x2(2, N = 579) = 25, 2466$, $p < .001$, with a medium effect size (Cramer's $V = .209$). To find out which cells have a significant effect, we further performed a post hoc test based on the work of Beasley and Schumacker (1995), and García-Pérez and Núñez-Antón (2003); i.e. we analysed standardised residuals and calculated individual chi-squared values and evaluated their p-values (see Table 3).
After the Bonferroni correction, the significance level was set to 0.05/6, i.e., 0.0083. Results show significantly ($p <.00001$) higher representation of reading type tasks in HTW (80.73% of all tasks in HTW) than in MAT, and a significantly ($p < .00001$) greater proportion of creative tasks being combined with reading tasks in MAT (20.43% of all tasks in MAT) than in HTW.

Table 3. Counts and expected counts by type of activity and educational area.

Type		HTW	MAT	Total
Reading	Count	88	270	358
	Expected count	67.40	290.60	
	Adjusted residual	4.51	-4.51	
	% within column	80.734	57.447	61.831
Combined	Count	3	96	99
	Expected count	18.64	80.36	
	Adjusted residual	-4.42	4.42	
	% within column	2.752	20.426	17.098
Creating	Count	18	104	122
	Expected count	22.97	99.03	
	Adjusted residual	-1.29	1.29	
	% within column	16.514	22.128	21.071

Types of SG and differences between areas

For further analysis, we excluded analytical units that did not have a specified graph form in their instructions (e.g., "*draw a graph from the values in the table*", while the type of SG was not restricted in the task). We also excluded maps, as there were only five cartograms in our sample, and pooling would not provide relevant results.
The chi-square test demonstrated a significant difference associated with the type of

chart (bar/line/pie/point) between education areas (MAT/HTW), x2(3, N = 533) = 90,072, p < .001, with a large effect size (Cramer's V = .411). An identical post hoc test was performed here as with the type of task. The significance level after the Bonferroni correction was set at 0.05/8, i.e., 0.00625. Statistically significant cells include all except line graphs, i.e., significant differences in graph types are shown for both bar and pie and point graphs (see Table 4).

Results show significantly (p<.00001) higher representation of bar charts in MAT (62.53% of all problems in MAT). Compared to expected values, bar charts are surprisingly scarce in HTW textbooks. We also measured a significant (p <.00001) relationship between HTW and MAT regarding pie graphs: greater than expected values of representation occur for pie graphs in HTW (56.12% of all units in HTW contain pie graphs, while in MAT, only 13.33% of the SG in the units are pie graphs). Results also show a significantly (p =.00221) higher representation of point graphs in MAT.

Table 4. Counts and expected counts by types of SG and educational areas.

Type		HTW	MAT	Total
Bar	Count	35	272	307
	Expected count	56.45	250.55	
	Adjusted residual	-4.85	4.85	
	% within column	35.71	62.53	57.60
Line	Count	7	58	65
	Expected count	11.95	53.05	
	Adjusted residual	-1.69	1.69	
	% within column	7.14	13.33	12.20
Pie	Count	55	58	113
	Expected count	20.78	92.22	
	Adjusted residual	9.36	-9.36	
	% within column	56.12	13.33	21.20
Point	Count	1	47	48
	Expected count	8.83	39.17	
	Adjusted residual	-3.06	3.06	
	% within column	1.02	10.80	9.00

Discussion

Fully developed statistical graphics are present in Czech MAT and HTW textbooks. Their frequency levels vary between publishers and may depend, for example, on the author's approach to statistical graphics. There were textbooks with zero SG on one side of the spectrum and textbooks averaging more than eight exercises utilising

SG per 100 pages. Even though year one textbooks work with graphic representations of data (Alper et al., 2017), there were no fully developed SG on this level. We also encountered some distinct cases, like the publisher *Nová škola*, which used a specific graphic device early on (year 2) to facilitate the learning process of adding and subtracting in MAT. This graphic display is a fully developed statistical graph by our definition, even though the publisher explicitly does not address this display as a graph in the text. Content analysis is unable to provide answers to whether the authors chose this graphic device intentionally to support data visualisation skills.

This is one of the limits of content analysis inquiry. There are empirical limitations of textbook research, as already pinpointed by Weinbrenner (1992). We also cannot describe the actual usage of the materials and provided exercises (units) in everyday classroom settings, i.e. we now know that SG are present in Czech elementary textbooks, and that their frequency varies. However, for example, the fact that a specific school uses textbooks by a low-frequency publisher does not necessarily mean that we should expect the DVL level of its students to be lower, since many other variables influence pupil literacy. We still consider this research method valuable and insightful, as it can provide a basis for later researchers seeking to understand the classroom realities of building and nurturing skills related to SG.

The data obtained in this study supported the rejection of the null hypotheses. Interestingly, results show a significantly greater representation of creating tasks combined with reading tasks in MAT (20.43% of all tasks in MAT are *combined*) than in the HTW area. Still, more than 22% of units in MAT are strictly *creating* tasks. While *combined* units may represent the process of using a statistical graphic as a tool to deal with a task and subsequently to answer an entry question, we noticed that many creating-only tasks were utilised without further inquiry, i.e., within a task like "*create a graph from a table*", without subsequent use of the created chart to answer questions or find a solution for a contextual problem that was lacking. The types of grounding for the tasks in the broader context and the realities of using SG as a problem-solving tool will require further qualitative research. The same applies to reading tasks, which are significantly more common in the HTW area. This may also be related to the lack of perception of SG as a practical tool.

This insight may also be connected to pie graphs being more common in the HTW area than in MAT. Pie graphs are among the most common forms for visualising proportions (Siirtola, 2019), even though they have long been the subject of professional and emotional debates on the legitimacy of their use (Spence, 2005).

The fact that most graphs (56.12%) in HTW are pie graphs shows that the authors may be inclined to this aesthetically pleasing form. The higher representation of point graphs in MAT could be due to their use in exercises related to coordinate systems ("*record the coordinates for the point X[3,5]*", etc.). There, while they may often not be directly intended as statistical graphics, by definition, they are fully developed scatter plots, a subset of the *point* graph category in our classification.

Conclusions

The study revealed varying frequencies of SG in Czech MAT and HTW textbooks used in primary education. Some textbooks lack such displays, while others incorporate them more frequently. The study highlights differences in the types of tasks and forms between the MAT and HTW areas, suggesting varied perceptions of the efficacy of statistical graphics in building and strengthening data visualisation skills. The results offer a foundation for informed investigation into the practical application of SG and its role as a problem-solving tool in elementary teaching and learning contexts.

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THE EFFECTIVENESS OF FRACTION BOARDS IN HELPING CONCRETE-THINKING STUDENTS INTERNALIZE THE CONCEPTS OF FRACTIONS

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Abstract/Izvleček

The final year of research aims to investigate the effectiveness of chocolate-shaped fraction boards in helping students internalize the concepts of fractions and correct procedures for performing fraction operations (addition and subtraction). The research design is descriptive qualitative. Thirty-five fourth graders at SD Negeri 8 Banda Aceh were involved as research participants. The data were collected through observations during the learning sessions. The results showed that the chocolate-shaped fraction boards are effective in helping the students perform fraction operations accurately, such as identifying equivalent fractions, equalizing the denominators of two simple fractions, and adding and subtracting simple fractions.

Tablica z ulomki kot učinkovita podpora učencem za razvijanje konkretnega mišljenja pri usvajanju koncepta ulomka

Namen raziskave je preučiti učinkovitost tablice ulomkov v obliki čokolade kot podpore učencem pri usvajanju konceptov ulomkov in pravilnih postopkov za izvajanje operacij z ulomki (seštevanje in odštevanje). Načrt raziskave je deskriptivno kvalitativen. V raziskavi je bilo udeleženih 35 četrtošolcev iz izbrane osnovne šole v Indoneziji. Podatke smo zbirali z opazovanjem med učnimi urami. Rezultati so pokazali, da so tablice za ulomke v obliki čokolade učinkovite kot podpora učencem pri natančnem izvajanju operacij z ulomki, kot so prepoznavanje enakovrednih ulomkov, izenačevanje imenovalcev dveh enostavnih ulomkov ter seštevanje in odštevanje enostavnih ulomkov.

Keywords:
Fraction board, Concept Internalization, Elementary School, PMRI, Indonesia.

Ključne besede:
tablica za ulomke, osnovna šola, Indonezija, razvijanje matematičnih pojmov, indonezijski realistični pristop k matematiki, PMRI (Pendidikan Matematika Realistik Indonesia).

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Introduction

People with hearing loss may perceive birdsong as an abstract concept, and so may people with hearing ability but who have never heard birds sing. Thus, understanding how birdsong sounds can be a challenging task for them (Saleh et al., 2018). Similarly, students at the concrete thinking level may find the abstract concepts of fractions challenging to understand if they cannot see and touch them (Karika and Csíkos, 2022). Furthermore, modern pedagogical theories (constructivism, cognitive theories) define learning as a personal creative process that involves the active changing and transformation of facts, an individual's interpretation and organization of knowledge, and its use in everyday life (Tomljenović, 2020).

Learning mathematics in primary education can be made truly relevant if it is done using media so that students can observe abstract material to help them understand the concept of the subject matter. The realistic mathematics education learning model is one learning model that considers students' thinking levels when learning mathematics in primary education, where pupils are still at the concrete thinking level (Sevinc and Lesh, 2022). In Indonesia, this term is known as PMRI (Indonesian Realistic Mathematics Education) (Saleh et al., 2018). The PMRI model does not ignore it; it always uses objects/things that are well-known to students to make it easier for them to understand the concepts being studied.

Students' first impression of fractions is critical in determining their success in understanding more advanced fraction concepts and operations. Students who do not have a solid foundation in basic fractions during their elementary years tend to have difficulty understanding advanced fractions at a higher level (Li and Smith, 2007; Morge, 2012; Naiser et al., 2004). A good understanding of fractional operations is crucial for students learning mathematics. Students' ability to understand fractions also predicts their subsequent success in algebra and in solving problems related to fractions in everyday life. However, research has reported that most students have difficulty understanding addition and subtraction of fractions (Hwang et al., 2020; Bossé et al., 2018). There are at least three difficulties experienced by students in learning fractions: the parts-whole relation, representation of number lines and comparison, and operations (Bossé et al., 2018a). Fractions are an abstract mathematical concept often taught using abstract materials (Saleh et al., 2018; Saleh, 2013).

This, unfortunately, causes many students, particularly those with concrete thinking skills, to consider this area problematic (Test and Ellis, 2005; Bossé et al., 2018b; Brown, G.; Quinn, 2007). Students who are concrete thinkers learn by observing physical objects around them; they have not yet developed the ability to visualize abstract information. Thus, a teacher who wants to teach fractions to this type of student needs to consider their thinking skills when finding an effective strategy to facilitate learning ((Zhang et al., 2017;) Appleton, 2012; Gravemeijer, 2004).

Teaching fractions using concrete objects is one way to build the understanding of concrete-thinking students (Swanson and Williams, 2014). Many programs in elementary schools now aim to develop students' knowledge of abstract concepts since this can unlock their potential to acquire more targeted skills (Koenig, 2006; Nizar et al., 2017; Sumirattana et al., 2017; Molefe et al., 2016). A fraction board has been designed to represent the abstract concept of fractions. It can enhance the students' learning experience in fractions (Özsoy, 2018); Nizar et al., 2017) and help them internalize the conceptual knowledge of fractions (Nizar et al., 2017); Zhang et al., 2017).

Students often make errors when performing fraction operations for the first time. They tend to apply incorrect procedures to solve problems because they do not understand basic fraction concepts and principles. In Research Period I, for example, the students confidently answered that "$\frac{1}{2} + \frac{1}{3}$" is "$\frac{2}{5}$". They arrived at the answer by adding the first numerator with the other numerator and the first denominator with the other denominator (Saleh et al., 2018; Jarrah et al., 2022). The numerators can only be added after the denominators have been equalized. Next, the sum should be divided by the denominator. Regardless, the students showed that they understood one as one part of three parts (whole); they were unaware that adding fractions requires the bottom numbers to be the same. For this reason, a math teacher who will teach fractions should be well aware of their students' thinking capacity to understand such a complex mathematical concept (Molefe et al., 2016). Suppose the students have a weak foundation in fractions. In that case, they are likely to think "mechanistically", so that they try to solve fraction problems by using the formulas they have previously learned, which are inaccurate and inapplicable to the problems (Swanson and Williams, 2014).

Using the PMRI (Indonesian Realistic Mathematics Education) approach, teaching fractions to students can be easy with chocolate-shaped fraction boards.

The boards enable the students to understand the concepts of fractions well and accurately perform fraction operations, such as addition, subtraction, and simplification of fractions. They have proven effective in enhancing students' ability to solve fraction and algebraic problems (Li and Smith, 2007; (Concepts, n.d.). The students can learn to use the boards under the teacher's guidance.

Chocolate-Shaped Fraction Board

A chocolate-shaped fraction board has been designed as a visual model that represents fractions with denominators 1, 2, 3, 4, 6, 8, 12, and 24. There are 24 small pieces in total, as shown in Figure 1. Using this fraction board can be an initial step in developing students' abstract thinking skills. Once they have observed the procedures of solving fraction problems using the board, they can visualize them later. Next, they may no longer need the fraction board to perform the operations. Instead, they use abstract materials like the board's images and fraction symbols.

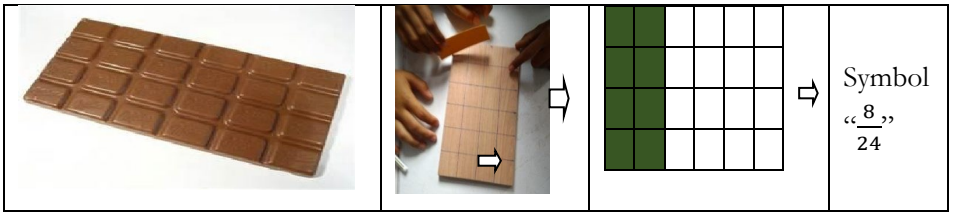

Figure 1. Steps to develop students' abstract thinking skills

Fraction operations, such as addition and subtraction of fractions, become easy using this board since the students do not have to think mechanistically about how to equalize the denominators of two fractions. The identification of two equivalent fractions can also be done using cardboard to cover the parts that become the numerators, as illustrated in Figure 2.

Learning at the Concrete Thinking Stage

As previously stated, students at the concrete thinking level focus on actual objects in their immediate surroundings and have difficulty processing abstract concepts. Thus, their learning should be adjusted with their thinking skills (Arends et al., 2017). Fourth-graders, in particular, are generally concrete thinkers (Saleh et al., 2017).

Thus, in teaching abstract mathematical concepts like fractions, teachers should consider their thinking capacity to understand and analyze the problems (Bayaga and Bossé, 2018). In fractions, the teacher can use a chocolate-shaped fraction board to demonstrate what a fraction means and how to perform fraction operations.

In contrast, the students can observe the processes immediately. In this way, the teacher no longer needs to provide a lengthy explanation, which is what commonly happens in a classroom that employs conventional methods. Instead, the teacher can give a set of fraction problems or activities that will stimulate students to explore the board's use in problem-solving and eventually build their understanding of this particular mathematical concept.

Advanced fractions taught at a higher level of education involve algebra with some variables. However, if students clearly understand the basic fraction concepts and principles, advanced fractional operations will not become an issue since the operations are still based on the same ideas and principles. In other words, the concepts of fractions with no variables introduced at an elementary level also apply to the fractions with variables introduced at a higher level of education.

Fraction

As a number concept, a fraction indicates a proportional relationship between a part (numerator) and a whole (denominator) (Liu et al., 2011). The whole is made up of several equivalent parts. For example, the fraction $\frac{1}{3}$ means a part of a whole, and the whole consists of three equal parts.

Students learn fractions for the first time in Grade 4 at the elementary level. Fractions are also part of the university curriculum. Students must have an excellent basic conceptual knowledge of fractions from their elementary years to perform complex fractional operations at the university level. The most basic concept they need to understand is the meaning of a fraction, which will help them solve fraction problems involving equalization of denominators, simplification, addition, and subtraction of fractions (with the same or different denominators) using the chocolate-shaped fraction boards.

Method

This case study uses a qualitative design. The case study is one of the five significant designs under the umbrella term of qualitative research (Merriam, 2016; Creswell, 2007). The present research is the final year of the three-year study (2017-2019).
Like Research Years I and II ((Saleh et al., 2018); Saleh et al., 2019), Research Year III had 10 learning sessions delivered for two weeks in one semester. Thirty-five students in Grade 4 at SD Negeri 8 Banda Aceh were involved as research participants.
The researchers sought approval from the school before conducting the study. After obtaining approval, the researchers and the teacher delivered the learning sessions during regular class hours. These sessions were considered regular learning sessions by the schools; thus, the schools no longer needed to provide separate learning sessions. Each session took about 2 hours (120 minutes), and the activities involved discussion and solving problems on the Student Activity Sheets (LAS). The students were allowed to use the chocolate-shaped fraction boards when they felt they needed to or when the teacher believed they needed to. The fraction boards and cardboard as supporting tools were always placed in front of the students.
In Research Years I and II, the teachers had a more dominant role in teaching than the researchers. The researchers only provided some necessary information, such as the information related to the learning procedures for data collection. Teachers selected for the research, especially for Research Period I, had gained much experience from various PMRI training sessions. In Research Period III, the role of the researchers was more dominant than that of the teacher. The researchers mainly delivered the learning sessions, while the teacher only observed and provided constructive feedback regarding the teaching when necessary for future improvement. Across all three periods, chocolate-shaped fraction boards were utilized as learning tools to allow the students to explore their use to solve fraction problems. The data were collected from tests, interviews, and class observations. The learning processes were carried out in groups of 5-6 students. Group study was chosen to enable the students to discuss and exchange ideas with their peers. Some activities of the students – particularly those using the fraction boards and cardboards– were recorded in short videos.

Results

The research focus in each period was different. However, all the research shares a similarity: chocolate-shaped fraction boards were used to help the students internalize the conceptual knowledge of fractions and other fraction sub-topics. The first-year research focused on examining the students' problem-solving and mathematical reasoning skills and determining the differences between the students learning fractions using the fraction boards and those being taught fractions using a conventional method. The focus of the second-year research was to find out the types of errors produced by the students in fraction calculations. In contrast, in the third year, the focus was on examining the effectiveness of the fraction boards in internalising the fraction concepts. The research findings in each period are presented below.

Research Year I:

1. Improvement was found in the mathematical reasoning skills of the students learning fractions using the PMRI approach compared to those being taught fractions using a conventional approach.
2. Despite the improvement, the students had not yet fully understood fraction concepts. They sometimes had difficulty explaining the meaning of a fraction, a part of a whole (continuous or discrete).
3. When a concrete object was divided into "n" in equal parts, the students tended to think that $\frac{1}{n}$ is a part of the whole (Saleh et al., 2018).

Research Year I did have a weakness. Its scope was too broad, covering all fraction topics in the Grade-4 curriculum, such as the meaning of fractions, fraction ordering, and all fractional operations. This weakness was then fixed in the second year of research.

Before delivering the learning sessions, the researchers carried out a diagnostic test to measure the students' prerequisite skills for learning fractions, such as the skills of addition, multiplication, division, understanding the meaning of $\frac{1}{2}$ represented by images and selecting the pictures of two congruent rectangles (with different positions and locations) on the test sheet.

Research Year II:

Research Year II aimed to identify the types of errors produced by the students. Three types of errors were identified: factual, familiar, and conceptual. The student's lack of knowledge causes factual errors. The students who committed this type of error left the answer sheet blank. Common errors occurred in the calculation of fractions, where the students' misconceptions about fractions caused conceptual errors. The students who made conceptual errors applied the previously learned procedures or rules that were inaccurate and inapplicable to the fraction problems they were trying to solve.
There are three indicators of misconception: misunderstanding factual information, drawing wrong conclusions, and misunderstanding the questions (Saleh et al., 2019).

Research Period III:

After three years of research, it was found that the chocolate-shaped fraction boards were effective in helping the students learn three fraction topics: equivalent fractions, the addition of fractions, and the subtraction of fractions. The boards can facilitate learning because they are a physical representation that the students can see, touch, and use to perform fraction operations (Özsoy, 2018; Nizar et al., 2017). However, in learning other fraction topics, such as placing a fraction on the number line, determining/comparing the values of two fractions, and simplifying fractions, the students showed that they required more time to internalize the concepts and perform the operations correctly. To simplify fractions and equalize denominators, in particular, the students can use pictures of the chocolate-shaped fraction board and do a little "trick", namely adding or removing line(s) from the pictures, which will enable them to achieve the results quickly and easily (Fig. 3)
Solving problems involving the equalization of denominators and identifying two equivalent fractions using chocolate-shaped fraction boards is a technique associated with PMRI learning. The students developed the skills while using the boards during the learning sessions. When they could find fractions with the same values, they could also efficiently deal with the problems involving adding two fractions with different denominators. A module on accurately performing fractional operations using a fraction board is designed to help math teachers who teach fractions.

Simplifying Fractions and Identifying Equivalent Fractions

After using the chocolate-shaped fraction boards, the students perceived the simplification of fractions and the identification of equivalent fractions as effortless tasks. The critical factor that contributed to their ability to perform these two operations correctly was their understanding of the basic fraction concepts, namely "of $\frac{1}{n}$" means a part of a whole, consisting of several parts of the same size. When the students developed the ability to simplify fractions, they simultaneously developed the skill of recognizing fractions with the same value.

To simplify fractions, the students can erase line(s) from the board image available in the worksheet. In contrast, they can add line(s) to the image to divide the board into smaller parts to identify equivalent fractions.

These two activities can also be done on a whiteboard so that the students can add or remove line(s) from the same image without drawing another. The processes of fraction simplification and identification of equivalent fractions using the line addition and removal technique are illustrated below:

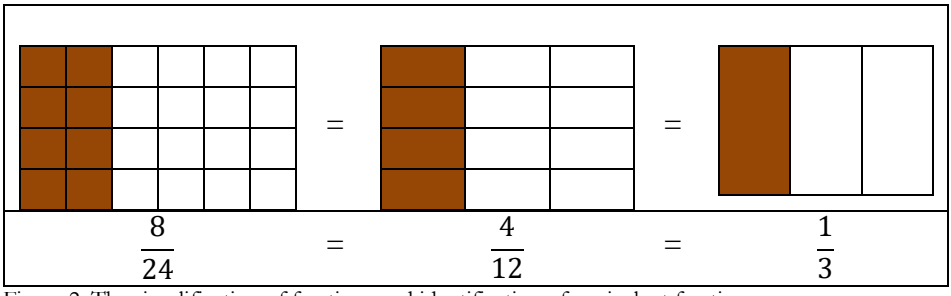

Figure 2. The simplification of fractions and identification of equivalent fractions

The addition of two simple fractions

The students can avoid errors using the chocolate-shaped fraction boards, such as adding two fractions with different denominators. For example, when adding fractions: "$\frac{1}{2} + \frac{1}{3}$"They will not produce. "$\frac{2}{5}$," as the answer. There is no possibility of doing that because the board cannot represent a fraction with a denominator = 5. As stated earlier, errors due to misconception are commonly produced by students, regardless of their level of education. Their poor understanding of the basic fraction concepts often leads them to give an incorrect answer spontaneously.

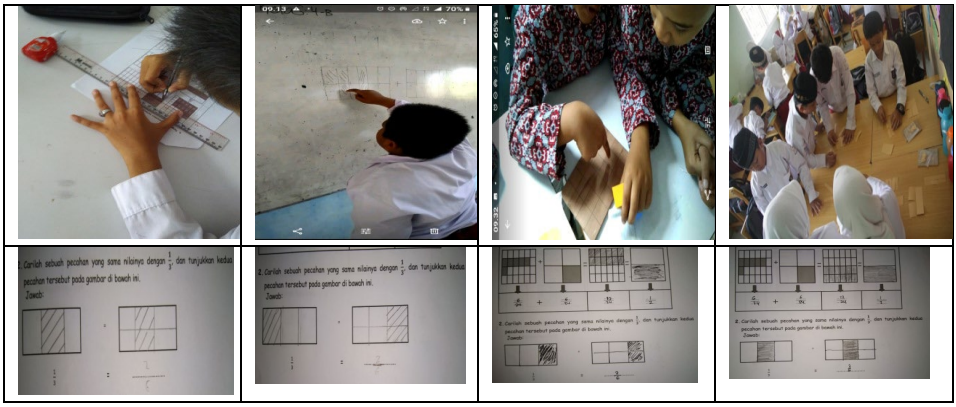

Figure 3. Students' activities using fraction boards and the board images

The addition of two simple fractions

The chocolate-shaped fraction board has denominators with positive factors of 24. To solve the fraction problem: "$\frac{1}{2} + \frac{1}{3}$"The students can manipulate the board in several ways using cardboard as supporting instruments:

Figure 4 illustrates the addition of fractions: "$\frac{1}{2} + \frac{1}{3}$"in three ways. In operating, the students had not yet been introduced to the general fraction algorithms: 1) equalizing the denominators by multiplying the denominator and the numerator of each fraction by the opposite denominator, 2) adding the numerators, and 3) leaving the denominators of both fractions unchanged, as they might become confused about why the bottom numbers have to be equal, the top numbers are added while the bottom numbers are not. Instead, the students were asked to operate using only fraction boards and cardboard after the teacher demonstrated their use. While exploring the board's use for solving problems, they eventually grasped the concept of fractions, the correct operational procedure, and different ways to achieve accurate results. All the processes and the results were directly observable.

Conclusion

More research should focus on building students' understanding of basic fraction concepts. The present study attempted to do so by utilizing chocolate-shaped fraction boards (6x4 units) and board images. A chocolate bar is an object with which students are familiar. The students also know that it can be divided into small pieces

if they want to share it with others. Using materials resembling a chocolate bar in learning fractions can thus help them recall their memory of it, facilitating learning and improving their understanding of fractions (Carpendale, 2018; Wahyu et al., 2017). This research benefits math teachers, especially those teaching fractions at the elementary level. It offers an innovative solution to the common problems encountered by students when learning fractions using a conventional method.

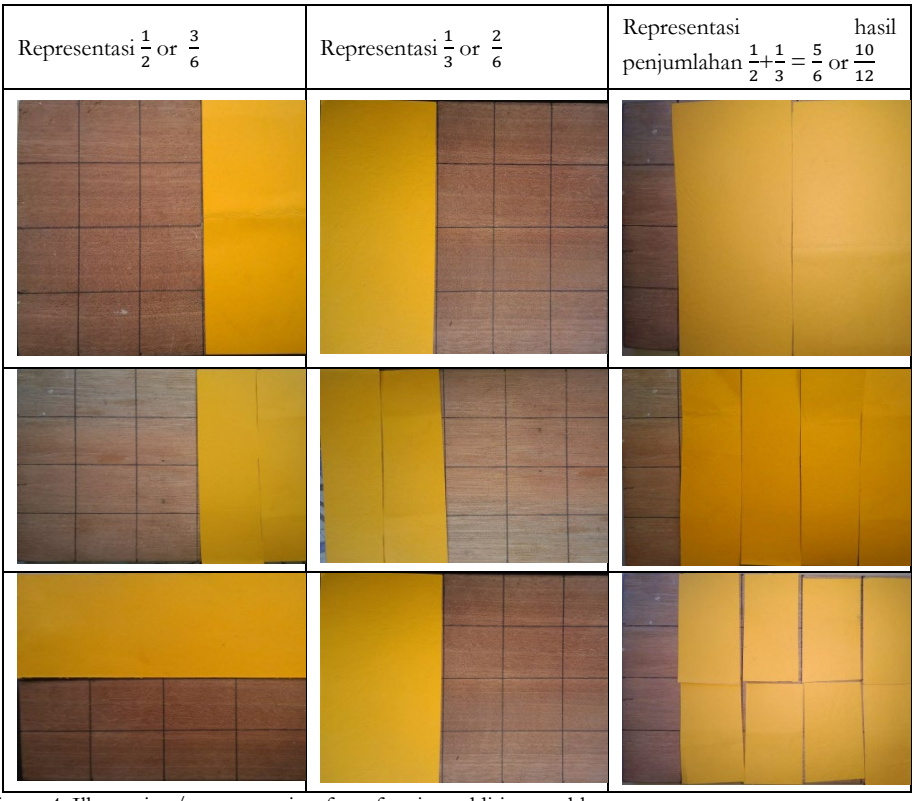

Figure 4. Illustration/representation for a fraction addition problem

These problems frequently occur, especially among elementary school students at the concrete thinking stage (Saleh et al., 2019; Saleh et al., 2018).

The chocolate-shaped fraction board acts as a visual model that students can see, touch, and use to solve fraction problems involving equalising denominators, simplifying fractions, and addition and subtraction.

When the students have grasped the conceptual understanding and are accustomed to using the board, error production can be prevented. However, a teacher needs to guide the students on using the chocolate-shaped fraction board correctly and provide other supporting learning tools, such as cardboard and Student Activity Sheets. Using this board is like playing with puzzles. It can arouse the students' curiosity and excitement. However, once the students can think abstractly, they may no longer need the board to perform fraction operations (Zhang et al., 2017; Amir-Mofidi et al., 2012).

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AKTIVNA VLOGA NADARJENEGA UČENCA PRI PRIPRAVI IN EVALVACIJI INDIVIDUALIZIRANEGA PROGRAMA

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Abstract/Izvleček

Prispevek osvetljuje pomen aktivne participacije nadarjenega učenca v procesu priprave in evalvacije individualiziranega programa (INDEP), ki izhaja iz učenčevih sposobnosti, želja in potreb. S kvalitativno vsebinsko primerjalno analizo tristo individualiziranih programov za nadarjene učence smo ugotavljali upoštevanje temeljnega načela vključenosti nadarjenega učenca v vsebinsko-ciljno pripravo in evalvacijo INDEP. Ugotovili smo, da se pri načrtovanju individualiziranih programov delno upoštevajo: aktivna vloga nadarjenega učenca, vsebinske prilagoditve in izzivi pri pouku, splošni in specifični cilji ter mentorska pomoč in podpora. Zapisani cilji v individualiziranih programih ne izkazujejo individualnih ciljev nadarjenega učenca ter so pogosto enako zapisani za vse nadarjene učence znotraj iste šole.

Keywords:
individualizirani program, nadarjenost, nadarjeni učenci, aktivna participacija, evalvacija

The Active Role of Gifted Students in the Preparation and Evaluation of Individualized Programs

The article highlights the importance of the active participation of gifted students in the process of preparation and evaluation of the Individualized Program (INDEP) based on their abilities, desires and needs. Through a qualitative comparative analysis of the content of three hundred individualized programs for gifted students, we found that the basic principle of involving gifted students in the content preparation and evaluation of the INDEP was taken into account. We found that the active role of gifted students, content adaptations in planning individualized programs and instructional challenges, general and specific objectives, and tutoring and support were partially addressed. Written goals in individualized programs do not reflect the individual goals of particular gifted students and are often worded the same for all gifted students in the same school.

Ključne besede:
individualized program, giftedness, gifted students, active participation, evaluation

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Uvod

Vzgojno-izobraževalno delo z nadarjenimi učenci je opredeljeno v *Zakonu o osnovni šoli* (1996), *Beli knjigi o vzgoji in izobraževanju* (2011), *Konceptu odkrivanja nadarjenih učencev in dela z njimi* (1999) ter *Strokovnih izhodiščih posodobitve Koncepta odkrivanja nadarjenih otrok, učencev in dijakov ter vzgojno-izobraževalnega dela z njimi* (2019). Strokovna izhodišča posodobitve *Koncepta* (2019) ponujajo operativne smernice za oblikovanje spodbudnega učnega okolja v šoli, kjer so opredeljene učne oblike in učne metode ter dejavnosti, ki zadovoljujejo vzgojno-izobraževalne potrebe nadarjenih učencev, ter predlogi za pripravo individualiziranega programa za nadarjene učence. Ti zaradi specifičnih izobraževalnih potreb potrebujejo učno individualizirano in diferencirano delo, kjer individualizirani programi predstavljajo eno izmed oblik akomodacije rednega izobraževanja nadarjenim učencem.

Vključenost in participacija z namenom povečanja izobraževalnih možnosti za vse učence sta ključna principa inkluzivnega izobraževanja, zato naj bi bili učinkoviti programi za nadarjene učence osnovani na družinski, šolski in skupnostni podpori ter oblikovani na način, da zadovoljijo individualne potrebe učenca in družine (Olszewski-Kubilius in Thomson, 2012, str. 402). Individualizirani izobraževalni program za nadarjene (v nadaljevanju INDEP) kot komunikacijsko orodje je namenjeno povezovanju učenca, učiteljev, šole in staršev, z namenom sodelovanja pri učinkovitem identificiranju in realizaciji potreb, interesov in ciljev nadarjenega učenca (Rogers, 2002, 2007). Učinkovit program za nadarjene učence se tako začne s skrbnim in informiranim načrtovanjem (Johnson, 1999), na katerem temeljita faza implementacije in evalvacije. V šolskem letu 2009/2010 je bila izvedena raziskava s področja stanja in oskrbe nadarjenih osnovnošolcev, kjer je bilo ugotovljeno, da ima INDEP zgolj 63–74 % nadarjenih učencev (Bezić in Deutsch, 2011). Tudi Juriševič (2012) ugotavlja, da nadarjeni učenci v osnovni šoli kar v tretjini navajajo pomanjkanje načrtovanja individualiziranih programov za nadarjene učence. V slovenskem šolskem sistemu so ravno ti učenci pogosto prezrti (Kukanja Gabrijelčič, 2014). Slednje lahko spremenimo z ustreznim načinom evidentiranja, identifikacije ter upoštevanjem učenčevih želja, potreb in interesov pri apliciranju taksonomsko višjih ravni nalog in dejavnosti v šolski vsakdan (Letina, 2021; Kukanja Gabrijelčič, 2014). Predpogoj za uspešno delo z nadarjenim učencem pa je strokovno in dovršeno izdelan INDEP. Ko imamo v razredu identificiranega nadarjenega učenca, je treba učne ure ustrezno učno diferencirati in individualizirati (Duh in Lep, 2008; Kukanja Gabrijelčič in Volmut, 2020) ter zanj pripraviti učno individualizirani

program. Pri načrtovanju INDEP sodelujejo vsi učitelji oddelčnega učiteljskega zbora, vodi ga razrednik. INDEP sooblikujemo s ciljem, da definiramo učne cilje, učne oblike in učne metode pri delu s posameznim učencem za tekoče šolsko leto s poudarkom na spodbujanju individualnih potreb na kognitivnem, motivacijskem, emocionalnem, socialnem, estetskem, ustvarjalnem in celostnem osebnostnem razvoju. Cilji in predlagane vsebine naj se (so)oblikujejo v dogovoru z učencem in starši, saj je INDEP živ dokument (Kukanja Gabrijelčič, 2017). Individualizirani programi za nadarjene učence izhajajo iz različnih konceptov nadarjenosti in kurikularnih modelov. Izbira kurikularnega modela mora biti usklajena s šolsko zakonodajo in kapacitetami šolskega sistema za izvajanje individualiziranih programov za nadarjene učence. Tako načrtovani individualizirani programi za nadarjene učence predstavljajo enega izmed načinov personaliziranega učenja (prav tam).

Aktivna participacija nadarjenega pri pripravi INDEP

Priprava individualiziranih programov za nadarjene učence je informacijski in komunikacijski proces, ki vključuje pridobivanje in izmenjavo osnovnih informacij o učencu za pridobitev obveščenega soglasja vseh udeleženih za vključitev in aktivno sodelovanje. Načrtovanje individualiziranega programa je tudi diagnostičen proces, ki obsega identifikacijo nadarjenega učenca in pridobivanje relevantnih podatkov preko diagnostičnih instrumentov, postopkov ter pogovorov s starši, učencem in učitelji. Načrtovanje individualiziranih programov za nadarjene učence je tudi del izobraževalnega procesa, kjer učenec aktivno sodeluje pri postavljanju lastnih potreb, ciljev, aspiracij in aktivnosti ter si s tem krepi kompetence za vodenje lastnega izobraževanja in prevzemanja odgovornosti za kakovost in učinkovitost implementacije individualiziranega izobraževalnega programa. Slednje označuje pomembno vlogo učenca pri postavljanju ciljev, določanju vsebin in aktivnosti. Individualizirani programi za nadarjene učence z vidika personaliziranega učenja predstavljajo prostor, kjer se srečata učiteljeva strokovnost za identifikacijo učenčevih individualnih učnih potreb v okviru kurikula in učenčeva zmožnost za razvoj samostojnega učenja (Prain idr., 2013, str. 661). Osrednji del učinkovitega načrtovanja je torej integracija učnega načrta z učinkovitimi učnimi strategijami ter izobraževalnimi potrebami nadarjenih učencev (Callahan, Moon, Oh, Azano, Hailey, 2015). Rogers in Amidon (2005) ugotavljata, da je 73,8 % učencev in staršev navedlo

da niso bili vključeni v proces in niso bili seznanjeni z vsebino individualiziranih programov za nadarjenega učenca. Gallagher in Desimone (1995) prav tako navajata pomanjkanje pomembne vključenosti staršev v proces, to pa lahko vodi v težave na komunikacijski ravni s starši nadarjenega otroka (Van Tassel-Baska, 2006).
Individualizirani program, oblikovan na osnovi diferenciacijskega modela nadarjenosti in talentov, je uporabniku prijazen in predvideva naslednje elemente: seznam področij nadarjenosti, okoljske faktorje, intrapersonalne faktorje in želene kompetence (Gagne, 2003). Pri postavljanju želenih kompetenc ima pomembno vlogo odločitev učencev o tem, na katerem področju bo razvijal svoja znanja in veščine (npr. akademske, tehnične, znanstveno/tehnološke, umetniške, socialne, administrativno/tržne, poslovne itd.) (Gagne, 2003). Individualizirani program je kakovosten instrument za spremljanje in evalvacijo učinkovitosti ter napredka učenca, njegovo načrtovanje pa je pomemben del kurikuralne zasnove dela z nadarjenimi učenci v osnovni šoli. Fazi načrtovanja in evalvacije individualiziranih programov imata tudi identifikacijski in razvojni pomen. Tako, recimo, preko različnih intervjujev z nadarjenim učencem, vprašalniki (za ugotavljanje npr. učnih stilov, osebnih ciljev, stila mišljenja in izražanja) ter ustrezne povratne informacije, opolnomočimo nadarjenega učenca za njegovo aktivno vlogo v vzgojno-izobraževalnem procesu (Renzulli, 2016). Ravno aktivna vloga nadarjenega učenca je ključna v vseh fazah izvajanja individualiziranih programov.

Raziskovalni problem, namen in cilji

Z vsebinsko primerjalno analizo INDEP za nadarjene učence smo preučevali zasnovanost individualiziranih programov za nadarjene in upoštevanje temeljnih potreb, želja in interesov (otrokovih močnih področjih) ter ugotavljali upoštevanje aktivne participacije učenca pri pripravi in evalvaciji INDEP. Cilji so bili: (i) preučiti aktivno vlogo nadarjenega učenca pri načrtovanju in evalvaciji individualiziranega programa; (ii) preučiti prisotnost učnih izzivov v individualiziranih programih za nadarjene učence v smislu upoštevanja otrokovih želja, potreb in interesov ter (iii) podpora na konativnem področju in mentoriranje nadarjenim učencem.

Raziskovalne metode

Za analizo INDEP za nadarjene učence smo kot metodo raziskovanja uporabili kvalitativno vsebinsko analizo. Pri obdelavi dokumentov smo uporabili odprto kodiranje.

Vzorec

V primerjalni analizi INDEP za nadarjene učence smo uporabili namensko vzorčenje tristotih (n = 300) INDEP za nadarjene učence, in sicer sto (100) iz sedmega razreda, sto (100) iz osmega razreda in sto (100) iz devetega razreda. Struktura po spolu v vzorcu je naslednja: nadarjenih učencev je bilo 54 % (n = 162), nadarjenih učenk pa 46 % (n = 138). V raziskavi je sodelovalo 10 slovenskih osnovnih šol. Uporabili smo namensko vzorčenje, kjer je bil vsak individualiziran program izbran z določenim namenom. V raziskavi je sodelovalo deset osnovnih šol. Izbira šol je bila statistično regijsko porazdeljena, in sicer iz desetih statističnih regij. S tem so ugotovitve vsebinske analize omejene na proučevani vzorec.

Pripomočki

Za izvedbo primerjalne analize INDEP smo uporabili individualizirane programe za nadarjene učence v sedmem, osmem in devetem razredu osnovne šole in jih ustrezno analizirali s pomočjo kvalitativne vsebinske analize.

Postopek zbiranja podatkov

Pri pridobivanju INDEP nadarjenih učencev smo se povezali s koordinatorji dela z nadarjenimi učenci v osnovnih šolah. Izbira šol je bila statistično regijsko porazdeljena, in sicer iz vsake statistične regije ena šola. Preko pridobljenih dokumentov – individualiziranih programov – ni bilo mogoče razbrati identitete nadarjenega učenca in učiteljev.

Rezultati in razprava

(i) Aktivna vloga nadarjenega učenca pri načrtovanju in evalvaciji individualiziranega programa
Vsebinska analiza individualiziranih programov je pokazala, da se aktivna vloga nadarjenih učencev izkazuje na različne načine: (1) upoštevanje mnenja nadarjenega učenca pri vsebinsko-ciljnem načrtovanju individualiziranega programa; (2) samostojno izpolnjevanje individualiziranega programa s strani nadarjenega učenca; (3) uporaba različnih vprašalnikov pri načrtovanju in upoštevanj rezultatov le-teh (učni stil, osebni cilji) ter (4) aktivno sodelovanje nadarjenega učenca pri sprotni in končni evalvaciji individualiziranega programa.

Preglednica 1: Aktivna vloga nadarjenega učenca pri načrtovanju in izvajanju individualiziranih programov.

Aktivna vloga nadarjenega učenca pri načrtovanju in izvajanju INDEP	DA f /%)	NE f (%)	SKUPAJ f (%)
Mnenje učenca pri vsebinsko-ciljnem načrtovanju individualiziranega programa	30 (10,0)	270 (90,0)	300 (100,0)
Samostojni zapis individualiziranega programa s strani nadarjenega učenca	60 (20,0)	240 (80,0)	300 (100,0)
Individualizirani program je nastal na podlagi predhodno opravljenih intervjujev in opravljenih vprašalnikov	60 (20,0)	240 (80,0)	300 (100,0)
Sodelovanje nadarjenega učenca pri evalvaciji individualiziranega programa	131 (43,6)	169 (56,4)	300 (100,0)

Iz preglednice 1, ki predstavlja načine aktivne vloge nadarjenih učencev pri načrtovanju in evalvaciji individualiziranih programov, je razvidno, da so nadarjeni učenci najpogosteje aktivno vključeni pri evalvaciji (sprotni in končni) individualiziranega programa (43,6 %). Slednja se izvaja na različne načine: preko pogovorov z nadarjenim učencem, v obliki prostega zapisa ali pa ocenjevalnega vprašalnika. Pogosto so v pogovor vključeni tudi starši nadarjenega učenca. Od 131 individualiziranih programov, kjer je učenec vključen v evalvacijo, je 60 takšnih, v katerih so nadarjeni učenci sami načrtovali individualizirani program ter 71 takšnih, ki so bili izpolnjeni le delno s strani nadarjenih učencev (kot npr. cilji ipd.).

Več kot polovica 56,3 % (169) individualiziranih programov nima zapisane sprotne in končne evalvacije programa. Vsebinska analiza individualiziranih programov je pokazala, da je faza evalvacije najšibkejša, zato bi bilo ji bilo treba posvetiti več pozornosti v obliki usposabljanja koordinatorjev in učiteljev. Prav tako je razvidno, da je bilo 20,0 % individualiziranih programov izpolnjenih s strani nadarjenega učenca ter vsebujejo mnenje nadarjenih učencev. Individualizirani programi, ki so jih nadarjeni učenci izpolnili sami, so bili oblikovani s strani šole in so vsebovali vse predpisane elemente za načrtovanje individualiziranih programov za nadarjene učence. Med desetimi šolami sta dve osnovni šoli oblikovali lastna obrazca (dokumenta) individualizirana programa. Obrazca sta preprosta, razumljivi in prilagojena razvojni stopnji učencev ter oblikovana na način, da vodita nadarjenega učenca preko ugotavljanja lastne nadarjenosti do postavljanja osebnih in učnih ciljev (metakognitivno in perspektivno mišljenje), akcijskega načrta (sposobnost načrtovanja) in evalvacije realiziranega (sposobnost vrednotenja in kritičnega mišljenja). Mnenje nadarjenih učencev o načrtovanih ciljih in dejavnostih v šoli in izven nje je pomembno v procesu načrtovanja in evalvacije. Mnenje nadarjenega učenca vsebuje 30 individualiziranih programov (10,0 %). Tako lahko, recimo, nadarjeni učenec pri načrtovanju individualiziranih programov napiše svoje mnenje o programu, osebne cilje, kratkoročne ali dolgoročne cilje ter se opredeli v odnosu do nadarjenosti in načrtovanih aktivnostih. Vključevanje mnenja nadarjenega učenca spodbuja samorefleksijo in aktivno vključenost nadarjenega učenca v njegov osebni razvoj ter vpliva na kratkoročne in dolgoročne cilje v življenju (npr. na karierno orientacijo, usmeritev interesov ipd.).

V proces načrtovanja INDEP bi morali vključiti tudi različne vprašalnike, teste, s katerimi se prepoznajo interesi nadarjenega učenca, njegov stil mišljenja in izražanja. Načrtovanje individualiziranih programov pa naj ne bi vključevalo zgolj posebnosti nadarjenega učenca, temveč tudi posebnosti učnega okolja. Vsebinska analiza individualiziranih programov je tako pokazala, da 20,0 % (60) individualiziranih programov vsebuje različne vrste vprašalnikov oziroma testov (kot so test učnih stilov, vprašanja za osebni razvoj, načrtovanje učne uspešnosti). S tem je omogočeno nadarjenemu učencu, da spoznava svoje osebnostne lastnosti, stile učenja, izrazni stil, interese, svoja močna področja, ki jih lahko vključuje v oblikovanje lastne samopodobe kot vseživljenjskega učenja. Vsebinska analiza INDEP pa ne izkazuje analize posebnosti učnega okolja v šoli, kot so kapacitete in omejitve, pogoji in kontekst šolskega okolja.

(ii)Prisotnost učnih izzivov v individualiziranih programih za nadarjene učence

Vsebinska analiza individualiziranih programov je pokazala, da so učni izzivi prisotni pri pouku, izven pouka v šoli in tudi tisti izven šole, kjer so pogosto zapisani na način, ki ne izkazuje individualnosti oziroma nadarjenosti učenca. Med pogostejše zapisane učne izzive pri pouku sodijo še širjenje in poglabljanje znanja pri posameznih predmetih, dodatni učni listi z nalogami in cilji, ki so zasnovani na višjih standardih znanja, dodatne naloge, vključevanje dejavnosti, ki spodbujajo ustvarjalnost, kompleksnost nalog in obseg učnih vsebin, višjih standardov znanja ter spodbujanje različnih nivojev mišljenja in učenja. Zastopanost različnih vsebinskih prilagoditev pri pouku je predstavljena v preglednici 2, kjer lahko ugotovimo, da so vsebinske prilagoditve pri pouku splošne in ne vključujejo bistvenih prilagoditev, ki jih nadarjeni učenci potrebujejo v vzgojno-izobraževalnem procesu (kot so razvijanje kritičnega, ustvarjalnega in reflektivnega mišljenja, reševanje avtentičnih problemov, odprte in izbirne naloge, integracija poglobljene vsebine in kompleksnosti učnega področja ter izdelovanje učnih izdelkov in produktov) (Reis, Renzulli in Renzulli, 2021).

Preglednica 2: Vsebinske prilagoditve in izzivi pri pouku, ki so zapisani v INDEP.

Vsebinske prilagoditve in izzivi pri pouku	f	(%)
Širjenje in poglabljanje znanja	221	73,6
Višji standardi znanja	180	60,0
Ustvarjalnost	83	27,6
Logično matematično mišljenje	45	15,0
Kritično mišljenje	16	5,3
Metakognitivno mišljenje	4	1,3
Medpredmetna povezanost	3	1,0

Vsebinske prilagoditve in izzivi pri pouku, ki so zapisane v INDEP, bi se morale konsistentno navezovati tudi na konkretni operativni in izvedbeni dokument, kot je učna priprava učiteljev. Učne izkušnje, ki slonijo na učnih izzivi za nadarjene učence, morajo graditi bogatejše, bolj raznoliko in organizirano znanje. To pomeni, da se dvignejo meje naučenega ter da to nadarjenemu učencu predstavlja izziv na njegovem močnem področju oziroma nadarjenosti.

(iii) Podpora in mentoriranje nadarjenim učencem

V okviru individualiziranih programov ima 16 % nadarjenih učencev možnosti udeležbe na osebnih svetovanjih in delavnicah za nadarjene; 6 % nadarjenih ima podporo mentorja (na kognitivnem in konativnem področju) ali mentorske mreže; 4 % nadarjenih pa ima v INDEP zapisano možnost pogovorov za socialni in čustveni razvoj. Glede na vse zahteve do nadarjenih učencev, bi bilo treba razširiti in obogatiti ponudbo za podporo nadarjenim učencem pri čustvenem in socialnem razvoju ter izvesti konkretno analizo podpornih dejavnosti za čustveni in socialni razvoj nadarjenih učencev z vidika možnosti, ki jih lahko šola ponuja oziroma jih ima na voljo.

Preglednica 3: Podporne dejavnosti za čustveno-socialni razvoj nadarjenega učenca

Podporne dejavnosti za čustveno-socialni razvoj nadarjenega učenca	f	%
Svetovanje za nadarjene učence	24	8,00
Delavnice za nadarjene učence	24	8,00
Mentorstvo – sodelovanje z učiteljem	18	6,00
Pogovori za osebni in socialni razvoj	12	4,00

Eno od področij, ki predstavlja tveganje za socialni in emocionalni razvoj nadarjenih otrok, so težave, ki izhajajo iz njihovega akademskega napredka v primerjavi z njihovimi vrstniki in sočasni asinhronosti njihovega kognitivnega in afektivnega razvoja (Freeman, 2005; Reis in Renzulli, 2004; Vötter in Schnell, 2019).

Podobnosti in razlike v individualiziranih programih

Šole uporabljajo različne obrazce za individualizirane programe, in sicer (i) priporočeni obrazec INDEP (Koncept, 1999) ter (ii) druge oblike, ki jih vzgojno-izobraževalni zavodi oblikujejo sami. V vsebinsko analizo je bilo vključenih 240 individualiziranih programov, načrtovanih na podlagi predloga obrazca INDEP12 (Zavod za šolstvo), ter 60 individualiziranih programov, ki so jih konceptualno oblikovale šole same.

Ugotavljamo, da je nekonsistentnost pri uporabi predvidenega obrazca za pripravo INDEP posledica nesistematičnega nacionalnega pristopa pri delu z nadarjenimi učenci. Prvi razlog je v tem, da temelji *Koncept dela z nadarjenimi učenci v osnovni šoli* (1999) še vedno na osnovi priporočila, torej ni zakonodajni dokument.

Zaradi tega je izvajanje vzgojno-izobraževalnega dela z nadarjenimi učenci prepuščeno strokovni avtonomiji posamezne šole oziroma njenim zmožnostim. Sledi, da je tudi izbor načina načrtovanja individualiziranih programov prepuščen šolam. Ugotovitve na področju načrtovanja individualiziranih programov kažejo naslednje: (1) koordinator dela z nadarjenimi učenci vodi in načrtuje pripravo individualiziranih programov; (2) nadarjeni učenec je glavni akter pri načrtovanju individualiziranih programov in (3) kombinacija obojega (načrtovanje izvede nadarjeni učenec, program evalvirajo učitelji, koordinatorji dela z nadarjenimi učenci, razredniki v šoli).

Vsaka implementacija individualiziranega programa je odvisna od kakovostnega načrtovanja, postavljenih ciljev ter prilagoditev vzgojno-izobraževalnega dela z nadarjenimi učenci znotraj šole in izven nje. Individualizirani programi za nadarjene učence so v osnovi delovni in razvojni dokumenti. Predvsem pri individualiziranih programih, ki so zapisani na priporočenih obrazcih Zavoda za šolstvo, lahko ugotovimo, da je faza načrtovanja (opredelitev splošnih ciljev, specifičnih ciljev ter seznam prilagoditev) vsebinsko dobro opredeljena s strani šol, pri načrtu sprotnega in končnega vrednotenja pa so kategorije v obrazcu prazne. V procesu spodbujanja razvoja nadarjenosti sta procesna in razvojna raven povezani s kakovostno povratno informacijo o napredku, ovirah in možnostih za nadaljnji razvoj. Individualizirani programi, pripravljeni na specifičnih obrazcih, razvitih s strani posamezne šole in načrtovani na način, da predvidevajo aktivno vlogo nadarjenega učenca, imajo popolnoma drugačno strukturo kot priporočeni obrazci s strani države. Vključevanje drugačnih pristopov pri načrtovanju individualiziranih programov je tako stvar strokovne avtonomije šole, strokovne usposobljenosti kadra, vizije in filozofije šole na področju dela z nadarjenimi učenci ter tudi priprave nadarjenega učenca za aktivno vlogo načrtovanja lastnega individualiziranega programa. Tako nikjer v INDEP ne zasledimo, da so zapisi nadarjenega učenca zasnovani na opravljenih testih, vprašalnikih, razgovorih oziroma pripravi nadarjenega učenca (kot lahko to zasledimo pri modelu Total Talent Portfolio (Renzuli, 2016) ali da bi vključevali analizo poučevalnih strategij učitelja (kot je to razvidno pri modelu Comprehensive Program Plan) (Colorado Department of Education, 2015). Izpolnjeni INDEP, ki so načrtovani na predpisanih obrazcih, pretežno ostanejo v arhivu svetovalne službe, kjer ni znano, ali se podatki, ki so zapisani v INDEP, prenesejo v učni plan učitelja. Predvsem pa ni znano, kako jih učitelj implementira v učno prakso.

Prav tako iz individualiziranih programov za nadarjene učence, kjer je bil glavni akter nadarjeni učenec, ni razvidno, ali INDEP poseduje nadarjeni učenec in kako je individualizirani program povezan z implementacijo v šolski pouk ali izven njega.
Primerjalna analiza strukture in vsebine individualiziranih programov je pokazala, da vsi INDEP za nadarjene učence vsebujejo ključne strukturne elemente, ki so predvideni v individualiziranem programu, kot so: (i) splošne informacije o nadarjenem učencu, (ii) načrt individualizacije vzgojno-izobraževalnega dela v šoli in izven nje ter (iii) evalvacija. Večina individualiziranih programov za nadarjene učence je poimenovanih »programi« (90,0 %), 10,0 % pa »individualiziran načrt«.
Med 300-imi individualiziranimi programi za nadarjene učence je bilo 60 (20,0 %) vsebinsko pripravljenih na obrazcih, ki so bili konceptualno oblikovani s strani šole ter izkazujejo aktivno vlogo učenca pri načrtovanju ter evalvaciji realizacije programa (op. zapisani so s strani učenca). Med temi programi obstajajo razlike v konceptih, in sicer: 30 individualiziranih programov je bilo osnovanih na konceptu obrazca: (1) splošni del, ki vsebuje informacije o učencu; (2) razvijanje močnih področij (šola, izven šole); podpis učenca, razrednika, staršev, koordinatorja ter ravnatelja; (3) evalvacija izpolnjevanja individualiziranega načrta ter 30 po naslednjem konceptu (1) osnovne informacije; (2) zapisani cilji; (3) dejavnosti izven šole ter mnenje nadarjenega učenca, pri katerih predmetih želi spoznati več vsebin; (4) podpis učenca, razrednika in starša; (5) evalvacija.
Individualizirani programi za nadarjene učence, ki so zapisani na predpisanih obrazcih s strani Zavoda RS za šolstvo, so sestavljeni iz treh delov: (1) Splošni del z osnovnimi informacijami; (2) Načrt individualizacije vzgojno-izobraževalnega dela ter (3) Sprotno in končno vrednotenje uspešnosti programa.

Raznolikost pristopov pri sprotni in končni evalvaciji individualiziranih programov

Vsebinska analiza 131 (43,6 %) individualiziranih programov, ki so vsebovali sprotno in končno evalvacijo, je pokazala, da je bila evalvacija narejena samo na nivoju pregleda dosežkov in izvedenih dejavnosti. Evalvacija tako ni vsebovala spremljanja dosežkov in merjenja kontinuiranega učnega napredka nadarjenega učenca. Evalvacija se izvaja na različne načine: ustno (preko pogovora) in pisno. Na tem mestu opozarjamo na potrebo po analizi znanja in spretnosti (kompetenc) koordinatorjev dela z nadarjenimi učenci oziroma tistih, ki izvajajo spremljanje in evalvacijo individualiziranih programov.

Vključenost in aktivna participacija učenca z namenom povečanja izobraževalnih možnosti za vse učence je eden izmed ključnih principov inkluzivnega izobraževanja. V procesu aktivne vključenosti učencev v postavljanje lastnih ciljev (npr. učence so usposobili za pisanje lastnih ciljev v individualizirane programe) sta se pokazali višja participacija učenca in višja kakovost vsebin v individualiziranem programu (Konrad, Trela, Test, 2006). Kljub temu da je v ospredju učenec, se zviša tudi nivo vključenosti družine (Childre in Chambers, 2005) in njihove podpore pri izvedbi programu (Buchanan, Fox in Martin, 2006). Individualizirani programi za nadarjene učence z vidika personaliziranega učenja predstavljajo prostor, kjer se srečata učiteljeva strokovnost za identifikacijo učenčevih individualnih učnih potreb v okviru kurikula in učenčeva zmožnost za razvoj samostojnega učenja (Prain idr. 2013, str. 661).

Evalvacija individualiziranega programa je pomembna faza v procesu ugotavljanja primernosti programa za nadarjenega učenca in njegovega nadaljnjega izvajanja.

Evalvacija je sestavni del izobraževalnega procesa, njen namen pa je izboljšati poučevanje in učenje, saj predstavlja reflektivno povezavo med namenom izobraževalnega programa in njegovo realnostjo v praksi (Kahan, 2008). Callahan (2004) ugotavlja, da je na področju evalvacije programov za nadarjene učence pomanjkanje relevantnih raziskav, evalvacijskih modelov ter longitudinalnih študij, ki bi odgovorile na ključna vprašanja, kako bodo učenci transformirali svoje znanje, kaj bodo vedeli, kaj bodo naredili, katere prednosti bodo imeli ob zaključku programa. Odgovori na ta vprašanja namreč pokažejo, ali je program za nadarjene učinkovit in dosega cilje, zaradi katerih je bil izveden. Rezultate evalvacij programov za nadarjene učence je treba interpretirati s celostnega vidika, in sicer: (i) na ravni koncepta (šolske zakonodaje), (ii) na ravni posamezne šole (kurikulrani model šole) in (iii) na ravni posameznika (individualizirani program za nadarjenega učenca) (Chen in Chen, 2020). Najbolj sistematičen pristop pri oblikovanju programov in s tem tudi njihove evalvacije je razvilo nacionalno združenje za nadarjene otroke NAGC (angl. National Association for Gifted Children 2010), ki opredeljuje standarde in pogoje za izvedbo programov za nadarjene učence v Združenih državah Amerike. Po NAGC (prav tam) naj bi se izvajali dve vrsti evalvacije, in sicer: (i) evalvacija na nivoju organizacije in (ii) na nivoju elementov programa. Na nivoju elementov programa naj bi izvajali triangulacijo podatkov naslednjih elementov programa: (1) oblikovanje programa, (2) procesa identifikacije nadarjenih učencev, (3) učnega načrta in poučevanja, (4) afektivne dimenzije, (5) profesionalnega razvoja

učiteljev ter (6) učinkovitosti programa (NAGC, 2010). Tudi v slovenskem šolskem sistemu potrebujemo sistematični pristop pri evalvaciji programov za nadarjene učence.

Individualizirani programi izkazujejo razlike pri načrtovanju aktivne vloge učenca pri njegovem kognitivnem in afektivnem razvoju. Področje je izjemno pomembno, ker se na to navezuje motivacija, karierni in osebni razvoj nadarjenega učenca. Identifikacijski proces nadarjenosti nam poda le osnovne podatke o nadarjenosti učenca.

Sklepne ugotovitve

Sodobne teorije učenja in poučevanja poudarjajo pomen celostnega razumevanja in razvoja nadarjenih učencev ter upoštevanje individualnih posebnosti pri načrtovanju in izvajanju ciljev, aktivnosti in dosežkov učenca. Načrtovanje individualiziranih programov naj bi bilo izhodišče za individualizacijo in personalizacijo učnih izkušenj nadarjenega učenca v šoli, ki omogoča učencu aktivno vlogo v učnem procesu in nadzor nad svojim učenjem in napredkom. Vsebinska analiza individualiziranih programov je pokazala, da se pri načrtovanju individualiziranih programov sicer upoštevajo temeljna načela spodbudnega učnega okolja za nadarjene učence, med katerimi bi izpostavili predvsem: (i) aktivno vlogo nadarjenega učenca, (ii) vsebinske prilagoditve in izzive pri pouku in (iii) mentorsko podporo na čustveno-socialnem področju, vendar velja razmislek o tem, če se v praksi tudi udejanjajo. Ugotovili smo tudi, da zapisani cilji v individualiziranih programih ne izkazujejo individualnih ciljev nadarjenega učenca ter so pogosto enako zapisani za vse nadarjene učence znotraj iste šole.

Razlike opažamo tudi v konceptualni strukturi obrazcev individualiziranih programov, pristopih pri sprotni in končni evalvaciji individualiziranih programov in načrtovanju aktivne vloge nadarjenega učenca. Rezultati kvalitativne analize individualiziranih programov odpirajo nova raziskovalna vprašanja, ki se nanašajo na potek implementacije individualiziranih programov v šolsko prakso; oblikovanje splošnih in specifičnih ciljev, povezanost med individualiziranim programom in učno pripravo učitelja, udejanjanje individualizacije učenja in poučevanja s pomočjo INDEP ter na vprašanje, če je individualizirani program dokument živ in razvojni dokument pri razvoju nadarjenega učenca.

Individualizirani program ima kot »živ« dokument v izobraževanju nadarjenih učencev več funkcij, med katerimi sta tudi identifikacijska in razvojna funkcija. Individualizirani programi so lahko osnova informacij o nadarjenemu učencu, z vključevanjem različnih vprašalnikov in testov pa se funkcija individualiziranih programov razširja tudi na področja raziskovanje samega sebe, samorefleksije, metakognitivnih veščin in osebnega razvoja. Implementacija individualiziranih programov za nadarjene učence je izziv mnogim šolskim sistemom, ki se niso prilagodili potrebam raznolikosti sodobnih učencev in inkluzivni šoli. UNESCO (2009) navaja, da je inkluzivno izobraževanje proces opolnomočenja kapacitet šolskega sistema, ki doseže vse učence in se odziva na raznolikost potreb učencev z njihovo povečano participacijo pri učenju.

Summary

A prerequisite for successful work with a gifted student is a professionally and perfectly prepared INDEP. We prepare the INDEP together with the aim of defining learning objectives, learning forms and learning methods when working with individual students for the current school year. Preparing individualized programs for gifted students is an information and communication process that involves obtaining and sharing basic information about the student to gain informed consent from all stakeholders for inclusion and active participation. Planning an individualized program is also a diagnostic process that involves identifying a gifted student and gathering relevant data through diagnostic instruments, procedures, and interviews with parents, students, and teachers. Planning individualized programs for gifted students is a part of the educational process in which the student actively participates in determining his/her own needs, goals, requirements, aspirations and activities, thereby strengthening his/her competences for managing his/her own education and taking responsibility for the quality and effectiveness of the implementation of the individualized educational program.

Using a content-based comparative analysis of three hundred (n=300) INDEPs for gifted students, we examined the design of individualized programs for gifted students and the consideration of basic needs, wants, and interests (the child's strengths) and identified the consideration of the student's active participation in the creation and evaluation of INDEPs.

The objectives were threefold: (i) to examine the gifted student's active role in the planning and evaluation of the individualized program; (ii) to identify the presence of learning challenges in individualized programs for gifted students with regard to the consideration of the child's wants, needs, and interests; and (iii) to establish the support and care for gifted students recorded in the INDEP.

Content analysis of the individualized programs has shown that the active role of the gifted student manifests itself in several ways: (1) consideration of the gifted student's opinion in the content goal planning of the individualized program; (2) independent completion of an individualized program by the gifted student; (3) use of various questionnaires in the planning and consideration of their results (learning style, personal goals); and (4) the active participation of the gifted student in the ongoing and final evaluation of the individualized program.

In the following, we found that there are learning challenges in the classroom, challenges in school and also outside of school, and that these are often framed in a way that does not recognize the student's individuality or talent; the content adaptations in the classroom are generic and do not include the essential adaptations that gifted students need in the educational process; within the individualized programs, 16% (48) of gifted students have the opportunity to participate in counselling and workshops for gifted students, 6% (18 students) receive support from a mentor or mentor network, and 4% (12) have the opportunity for conversations about social and emotional development. A comparative analysis of the structure and content of the individualized programs showed that all individualized programs for gifted students contain important structural elements provided in the individualized program, such as the following: (i) general information about the gifted student, (ii) a plan for individualized educational work in and out of school, and (iii) evaluation. Content analysis of 131 (43.6%) individualized programs that included ongoing and final evaluation showed that evaluation was only at the level of review of performance and completed activities.

The inclusion and active participation of students with the aim of increasing educational opportunities for all students is one of the key principles of inclusive education. Individualized programs show differences in planning the student's active role in their cognitive and affective development. This area is extremely important as it is linked to a gifted student's motivation, career and personal development. The gifted identification process gives us only basic information about the student's giftedness.

As a document of gifted education, the individualized program has several functions, including the identification and development function. Individualized programs can be the basis for information about a gifted student. By incorporating various questionnaires and tests, the function of individualized programs extends to the areas of self-exploration, self-reflection, metacognitive skills, and personal development.

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STRESS IN THE PRESCHOOL PROFESSION: ACTION RESEARCH

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Abstract/Izvleček

Stress has become an integral part of modern humans' busy lives. One of the professions in which stress is highly prevalent is that of a preschool teacher. Therefore, action research was conducted in a higher education context aimed at reducing preschool teacher stress. After one month of introducing changes that met teachers' interests and needs and realizing their baseline values, teacher stress was reduced. Moreover, the research produced multiple benefits on both the personal and professional levels. The paper points to the need to organize a motivating pedagogical environment in higher education, which will make positive changes in students' lives and in their professional development.

Keywords:
experiential teaching, occupational stress, preschool teachers, values, well-being.

Stres v vzgojiteljskem poklicu: akcijsko raziskovanje

Stres je postal sestavni del zaposlenega življenja sodobnega človeka. Eden od poklicev, kjer je stres zelo prisoten, je tudi vzgojiteljski. Z mislijo na to je bilo izvedeno akcijsko raziskovanje v okviru visokošolskega pouka, s ciljem zmanjšati stres v vzgojiteljskem poklicu. Po enomesečnem obdobju, v katerem so vzgojiteljice uvajale spremembe, ki so zadovoljevale njihove interese in potrebe ter uresničevale njihove izhodiščne vrednote, je bila ugotovljena znižana raven stresa. Hkrati so bile ugotovljene tudi mnoge koristi izvedene raziskave na osebni in profesionalni ravni. Delo nakazuje na potrebo po organizaciji motivacijskega pedagoškega okolja v visokem šolstvu za ustvarjanje pozitivnih sprememb v življenju in delu študentov.

Ključne besede:
izkustveno učenje, koristi, poklicni stres, vrednote, vzgojitelji.

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Introduction

Nowadays, stress is a common term that is ubiquitous in our fast-paced society. Stress represents a person's physical and/or psychological reaction to stressors, where a stressor or stress stimulus implies a physical, psychological, or social stimulus that causes a state of stress (Matulović et al., 2012). The beginning of research on the phenomenon of stress dates to the 1930s, when Hans Selye explained stress as a bodily reaction to different demands, which earned him the title of the founder of the stress theory (Fink, 2010). The concept of stress has been explored in diverse scientific fields and areas, producing numerous, divergent definitions of the term (Brkić and Rijavec, 2011). For example, stress is defined as the degree of disagreement between the demands placed on an individual and their ability to cope with those demands (Guglielmi and Tatrow, 1998, as cited. in Kyriacou, 2001) or as a state of worry or mental tension caused by a difficult situation (World Health Organization (WHO), 2023). According to the WHO (2023), stress is a natural human response that prompts us to address challenges and threats in our lives. People react to stress differently, precisely because the source of stress can be different situations or our assessment of those situations, based on which we produce a reaction as a response to stress. Every person is different, which means not all reactions are the same, i.e., not all stressors are the same. However, the way we react to stress greatly affects our overall well-being.

General discussion on stress points to different understandings of the term; however, when talking about occupational or work-related stress, some professions stand out, including teaching (class teachers, subject teachers, preschool teachers) (Brkić and Rijavec, 2011; Tatalović Vorkapić and Lončarić, 2013; Živčić-Bećirević and Smojver-Ažić, 2005). Kyriacou (2001) defines teacher stress as stress caused by the perception of work that causes a negative emotion and poses a potential threat to self-esteem or personal well-being. According to De Simone et al. (2016), the results of research on stress conducted on samples of educational staff show that the teaching job is extremely stressful. Recently, Tekavc and Vončina (2023) also determined that teachers, although satisfied with their work, find their profession to be highly stressful. There are three main variables connected with stress: mental well-being, physical health, and job satisfaction.

Based on the above, teachers showed higher job dissatisfaction and higher levels of stress related to mental and physical well-being compared to other highly stressful professions (Travers and Cooper, 1993). Research conducted by the European Agency for Safety and Health at Work (2008) has shown that workload, role overload, lack of support from management, increased class size per teacher, and unacceptable student behaviour are the main causes of teacher stress. Similarly, students, teachers and parents point to keeping discipline as one of the most common difficulties teachers face in their work (Plavšić and Diković, 2022).

Sindik and Pavlović (2016) and Živčić-Bećirević and Smojver-Ažić (2005) found that preschool teachers also experience high levels of work-related stress. They perceive the following as being extremely stressful: time pressure, meeting children's needs, coping with duties outside their professional domain, meeting personal needs, interaction with parents of kindergarten children, interpersonal relationships, and constant adaptation to changes in the preschool curriculum (Živčić-Bećirević and Smojver-Ažić, 2005). Tatalović Vorkapić and Lončarić (2013) point out that monitoring the levels of preschool teacher stress, well-being and personality traits is essential in maintaining quality early learning and education. Furthermore, the authors argue that only satisfied teachers who feel good, learn, explore, cooperate, and perceive their job as meaningful can do their job well, as Mandarić Vukušić and Krstulović (2024) also concluded in their research.

In addition to experiencing stress, it is also important how an individual copes with it. Coping with stress is a response or a way of reacting in a particular situation perceived as stressful. Pavlović and Sindik (2014) identify three ways of coping with stress: problem-focused coping, emotion-focused coping, and avoidance coping. How one copes with stress depends on his/her personal characteristics and capacities (Pavičić Dokota et al., 2020). Kyriacou (2001) believes that a teacher can cope with stress in two ways: using direct action and palliative techniques. With regard to the former way, it is necessary to determine the cause of stress and then decide how to cope with it. Palliative techniques are not a stress management mechanism but are used to alleviate the cause of stress. One can use mental techniques as well as physical relaxation techniques. Lučanin (2014) claims that it is necessary to have certain techniques for coping with stress. He argues that individuals should adjust their goals and better organize themselves, and emphasizes the importance of implementing protective measures, improving health, regular and

adequate high-quality nutrition, physical exercise, and scheduling time for rest with enough sleep. The author mentions the importance of education for a better attitude toward work, the appreciation of feedback from other people in the same situation and slowing down the pace. In addition to these stress-coping techniques, a positive and supportive environment can significantly improve professional functioning, thus creating optimal conditions for educational work (Pavičić Dokota et al., 2020). Consequently, this paper presents action research conducted in a higher education context aimed at reducing stress in the preschool profession.

Broader research context

This action research was conducted within the course *Action Research in Early and Preschool Education* held at the Department of Early and Preschool Education, Faculty of Humanities and Social Sciences at the University of Split, Republic of Croatia, in the academic year 2022/2023. The *research problem* was preschool teacher stress, an issue that has been present for decades in the preschool profession (Tatalović Vorkapić and Lončarić, 2013); it is thus not surprising that students (hereinafter referred to as preschool teachers, all female) need to actively face it.

Under the mentorship of course professors in the process of experiential learning, preschool teachers took an active part in the basic phases of action research (Kuhne and Quigley, 1997). In the *planning phase*, they identified the research problem, project, and methodology. After determining the initial state, in the *action phase*, preschool teachers implemented the action plan, then they *observed*, and recorded the results using mixed methods, and determined the final state of the research. In the *reflection phase*, they evaluated the results and reflected on the entire research process, identifying the benefits of the completed research. The *aim of the action research* was to reduce stress in the preschool profession, and the initial research question was: *How can we reduce the level of stress by introducing activities in which we achieve our baseline values?*

In accordance with the varied causes of stress that they perceived (including poor organization, neglect of themselves and their families, and job dissatisfaction), preschool teachers identified, individually, in pairs, or in groups, different baseline values they sought to achieve with this research, and thus reduce work-related stress. The baseline values that were the standards for assessing the quality of action research (Whitehead, 1989) included *good organization, self-commitment and family commitment*, and *job satisfaction*. Furthermore, preschool teachers planned the changes

they would introduce in a one-month period to meet their needs and interests, achieve baseline values, and reduce perceived stress. Among the changes were activities such as introducing a schedule of obligations, relaxing, entertaining, and meditative activities, regular exercise, healthy eating habits, and joint activities with friends, family and/or parents, colleagues, and kindergarten children. The following step was to determine the initial state of the research, whereby all preschool teachers completed a questionnaire to determine stress levels (Lovibond and Lovibond, 1995). This was followed by a one-month introduction of previously planned changes, which was systematically monitored and documented by applying mixed methods. This process consisted of weekly monitoring of the changes in stress levels using the same self-assessment scale from the initial state and keeping records (diaries, photos, or videos). After a month, the questionnaire from the initial research phase was completed again, and the research benefits were determined. After completing the course, the preschool teachers made a report on the action research and presented the process of their research by replying to several reflective questions. Extracts from these reports were used to achieve a deeper understanding of the benefits of the action research.

Research methodology

Research participants

The action research was conducted among preschool teachers attending the first year of the part-time graduate study program in Early and Preschool Education (N = 58) at the Faculty of Humanities and Social Sciences in Split in the academic year 2022/2023. Preschool teachers enrolled in part-time study after completing either the full-time undergraduate study program or the differential program for enrolment in the graduate study program. Most of them work in one of the kindergartens in the city (n = 41; 73.2%), eleven are employed in private kindergartens (19.5%), while four preschool teachers are unemployed (7.1%). The majority (n = 39; 69.6%) work in a ten-hour program, five of them work in a six-hour program (8.9%), one preschool teacher (1.8%) works in a five-hour program, and one (1.8%) in an eight-hour program, while four preschool teachers (7.1%) work in shifts. Three preschool teachers (5.4%) have different job combinations (special program, trainee, etc.).

As for their marital status, almost the same number of preschool teachers are married (n = 22; 39.3%) and in a relationship (n = 19; 33.9%), while 15 are not in a relationship (26.8%).

Instruments and data collection

In addition to the questionnaire that examined the general data presented in the description of the research participants, the *Stress Scale* was applied in the initial and final research phases. The *Stress Scale* is part of the *Depression Anxiety Stress Scales (DASS)* (Lovibond and Lovibond, 1995), and consists of 14 items that include indicators of chronic, non-specific arousal, difficulties with relaxation, anxiety, impatience, etc. (Reić Ercegovac and Penezić, 2012). Živčić-Bećirević and Smojver-Ažić (2005) state that self-assessment methods are usually not considered sufficiently objective in research, but according to the definition of stress as an assessment or perception of the experience, these are nevertheless relevant methods for examining this phenomenon. Therefore, self-assessment was used in this study as well. The research participants were required to assess the extent to which each item applies to them using a four-point Likert-type scale ranging from 0 – it does not apply to me at all, to 3 – it applies to me completely. Using the Cronbach alpha coefficient, the internal consistency reliability of the scale was calculated in the initial and final tests, confirming high values in both cases (Table 1), which is in line with the reliability found by Lovibond and Lovibond (1995) ($\alpha = 0.81$) and Reić Ercegovac and Penezić (2012) ($\alpha = 0.89$). One factor was extracted using principal components analysis in both cases. The total score on the scale in the initial and final states was formed as a linear combination of estimates on the scale items, and a higher score represents a higher level of stress.

Table 1. Reliability and validity of the *Stress Scale*

	Cronbach's alpha	% of total explained variance	N item	M scale	SD scale
initial	0.918	49.512	14	14.91	8.54
final	0.927	53.699	14	9.37	7.87

Qualitative data were collected by analysing the records, i.e., written student reports on the conducted action research to better understand the quantitative indicators.

Results and discussion

The average values for *Stress Scale* items in the initial and final states can be seen in Table 2. In both cases, preschool teachers showed slightly more pronounced anxiety and difficulties with relaxation, while less pronounced irritability or negative energy were identified. The overall result was formed on the *Stress Scale*, and by comparing the overall results on the scale in both cases using the dependent samples t-test, it was found that in the final test, the stress was significantly lower ($M_{initial} = 1.06$; $SD = 0.61$; $M_{final} = 0.67$; $SD = 0.56$; $t = 4.179$; $df = 55$; $p < 0.001$). This confirmed the effectiveness of the changes implemented in the action research. It can be seen that, as opposed to the results of other researchers (Sindik and Pavlović, 2016; Živčić-Bećirević and Smojver-Ažić, 2005), preschool teachers did not show a high, but a medium level of stress in the initial research phase; however, this level of stress created aggravating circumstances in their private life and work, which can be seen from the qualitative results of the research, and this made them feel the need to conduct the action research to reduce stress.

Table 2. Descriptive indicators of the *Stress Scale* items

Items	initial				final			
	Min	Max	M	SD	Min	Max	M	SD
I found it difficult to relax.	0.00	3.00	1.32	0.95	0.00	3.00	0.86	0.88
I found myself getting upset by quite trivial things.	0.00	3.00	1.30	0.93	0.00	3.00	0.77	0.89
I tended to over-react to situations.	0.00	3.00	1.27	0.84	0.00	3.00	0.89	0.82
I found it hard to wind down.	0.00	3.00	1.21	1.02	0.00	3.00	0.68	0.92
I found it hard to calm down after something upset me.	0.00	3.00	1.14	0.96	0.00	3.00	0.82	0.83
I found myself getting upset rather easily.	0.00	3.00	1.12	0.89	0.00	3.00	0.78	0.75
I found myself getting agitated.	0.00	3.00	1.11	0.93	0.00	3.00	0.61	0.75
I was intolerant of anything that kept me from getting on with what I was doing.	0.00	3.00	1.05	0.82	0.00	3.00	0.84	0.89
I was in a state of nervous tension.	0.00	3.00	1.05	0.90	0.00	3.00	0.71	0.80
I felt that I was rather touchy.	0.00	2.00	1.02	0.73	0.00	3.00	0.53	0.71
I found it difficult to tolerate interruptions to what I was doing.	0.00	3.00	0.91	0.84	0.00	3.00	0.71	0.75
I found myself getting impatient when I was delayed in any way (e. g., lifts, traffic lights, being kept waiting).	0.00	3.00	0.89	0.84	0.00	3.00	0.48	0.68
I found that I was very irritable.	0.00	3.00	0.82	0.72	0.00	3.00	0.43	0.66
I felt that I was using a lot of nervous energy.	0.00	3.00	0.68	0.83	0.00	3.00	0.25	0.54

The t-test results indicate the positive effect of the changes made in preschool teachers' lives during the action research aimed at reducing the level of perceived stress; however, this quantitative indicator is not enough for understanding the process that enabled the reduction of their stress. Therefore, the following passages will present preschool teachers' statements about the benefits of the studyre, which are the result of their continuous reflection on the research and the meaning it had for them. Based on content analysis, preschool teachers' statements were classified into three categories: 1) *personal, emotional, and physical well-being* related to the subjective perception of one's own health and satisfaction, 2) *educational well-being* related to the development of personal cognitive and other potential, and 3) *social well-being* related to successful functioning with others and the development of social competences. The types of well-being were determined in accordance with the categories of well-being described in the *National Curriculum for Early and Preschool Education* (2014). Tables 3–5 provide examples of statements in each category.

In the category of *personal, emotional, and physical well-being* (Table 3), the preschool teachers emphasized the achievement of personal peace, improved physical and mental health, and greater work motivation, whereby personal satisfaction contributed to their job satisfaction. These results are important for understanding the reduction in stress that occurred after introducing the activities aimed at meeting preschool teachers' personal needs, interests and baseline values because previous research has shown that failure to achieve mental and physical well-being and job satisfaction is correlated with high levels of stress (Travers and Cooper, 1993). Thus, introducing a schedule of obligations, relaxing, entertaining, and meditative activities, regular exercise, healthy eating habits, and joint activities with friends, family and/or parents, colleagues, and kindergarten children can be considered effective techniques for coping with stress, which is in accordance with the recommendations given by Lučanin (2014). In addition, the results showed that in this category, preschool teachers achieved their baseline values of *good organization, self-commitment, family commitment*, and *job satisfaction*.

Table 3. Personal, emotional, and physical well-being as the benefit of the action research

Examples of participant statements
"I achieved primarily personal well-being, which was my goal, I feel better, I relax more easily, I am less irritable and more pleasant company, I ask for help and support when I am in a problem situation, and have better control over my life (…)"
"The research benefits are related to subjective feelings, being satisfied, and feeling good in my work environment and being calm in situations that I cannot change."
"The benefits include better quality time, better organization, this has led to a sense of peace and satisfaction."
"The benefits of this research are better organization, which contributes to greater efficiency both at home and at work, and a sense of happiness and satisfaction because I have succeeded in my goals."
"The main research benefit is a better quality of life, seen in good time management, better nutrition, and frequent movement."
"The benefit of my research is better time organization which allowed me to find time for myself, my family, and friends. This is the best way to reduce stress and tension."
"The benefits of this research for me are primarily the introduction of physical activity into my life, which I completely neglected before this research, and it resulted in my being more satisfied with my own body, a general sense of satisfaction and competence, and a reduction in tension."
"The research improved my mental and physical health (emotional calm, reduction of undesirable emotional states – nervousness, irritability, better concentration, more physical energy, and better sleep)."
"In the psychophysical sense, I recognize the benefit in the concrete reduction of personal stress levels, and the decline in the intensity and occurrence of physiological indicators of stress during this project (rapid heartbeat, feelings of physical and emotional fatigue). I also recognize psychophysical well-being in a greater focus on a caring attitude towards myself (…). The emotional well-being was achieved by strengthening my self-esteem, developing a sense of optimism and self-efficacy, and greater openness to (self-)reflection."
"The research benefit is that I introduced and carried out activities that affect both my appearance and my health. Satisfaction with myself and the time I devoted to myself also resulted in an increase in work motivation."

With regard to *educational well-being* (Table 4), preschool teachers emphasized learning about themselves in the context of stress through action research that enabled them to better understand themselves, their relationship with themselves and others, and their attitude toward work. They appreciate the action research structure (plan, action, observation, reflection), (self)assessment, and documentation of practice (Kuhne and Quigley, 1997). These statements show the importance of preschool teacher reflection during the research, and the importance of the educational and research task as an incentive for their action. Reflection has been confirmed as an important form of professional development in preschool teachers (Vekić-Kljajić, 2022) and schoolteachers (Močinić and Tatković, 2021). Therefore, it is positive that preschool teachers have recognized the benefits of engaging in reflection.

According to their statements, higher education courses organized in the form of experiential learning proved to be a favourable pedagogical environment that provided the motivating conditions necessary to make positive changes in their lives, work, and professional development. This is also positive given that a supportive pedagogical environment has proven to be a significant factor for successful professional functioning and coping with stress (Pavičić Dokota et al., 2020). Similar results were obtained by Jukić et al. (2022), who found that experiential learning through action research in higher education improved the quality of students' free time during the coronavirus pandemic, an effect which had a positive impact on other aspects of students' lives. The authors concluded that an organized pedagogical environment creates conditions favourable for meeting students' needs and interests, and thus achieving their personal and professional well-being.

Table 4. Educational well-being as a benefit of the action research

Examples of participant statements
"The benefits are certainly conducting the first action research in my life, reflecting on the activities I have carried out, finding their scientific basis, and reviewing other research."
"Keeping a diary and taking notes has helped me reduce my stress levels, and especially to learn how to cope better with stressful situations. Daily planning of different activities enabled me to discover which activities help me cope with stress and calm down (…)."
"Frankly speaking, I was curious how this research would affect me because I would never have dared to do something like this if it wasn't for a course assignment at the faculty (...). I have come to the conclusion that the research benefits are 'pushing' oneself towards positive changes, changing one's way of thinking, putting oneself and one's needs first from time to time, setting boundaries, and acting on one's health before high levels of stress occur."
"This research has encouraged me to devote more time to myself, since I cannot change the stress that comes from the nature of this work, but also unexpected situations, as well as the number of obligations I have, I can change myself and the way I deal with everything that life brings."
"The research benefits are that I paid attention to how I respond to stress. I have learned that I should not experience so intensively what is out of my control, and that what I can influence always has several alternative solutions. Now I try not to postpone problems, but to act immediately, deliberately, and purposefully."
"I learned about my best coping mechanisms, and the activities we chose at the beginning, in my opinion, are very good so I will definitely continue to implement these in my free time and during the time of socializing with others because they greatly contribute to reducing stress levels and to easier relaxation."
"The research benefits are that I have concluded I can now more easily cope with stressful situations; that is, I managed to improve the mechanisms for coping with stress. I feel safer, I do not shy away from responsibility, I try to solve the problem immediately and analyse it before I react. All this helps me to come to work more calmly."
"The benefits of this research for me are that in stressful situations, I react more calmly and focus on finding solutions."
"The benefits of the conducted research are really many for me… New insights about stress, about my reaction, about possible reactions that I can consciously choose and apply."

Finally, in this category, preschool teachers pointed out that during the research, by making a judicious choice of changes that they introduced into their private life and/or work environment, they developed various mechanisms for coping with stress, which also had a beneficial impact on their work and relationships with others. The preschool teachers' statements show their focus on problem solving (Pavlović and Sindik, 2014) and active coping with stressors, i.e., the use of direct-action techniques, whereby they first determined the cause of their stress, and then chose effective ways to reduce it (Kyriacou, 2001), which contributed to the reduction of perceived stress. It should be emphasized that, in this category, the baseline values of *good organization* and *self-commitment* were realized.

Table 5. Social well-being as a benefit of the action research

Examples of participant statements
"I believe that the greatest benefit of this research for me was communication and cooperation with my colleagues (…). I believe that our relationship was an advantage from the beginning, because we are critical friends in each other's lives, and we have only proved that with this research."
"(…) also, a great benefit is the exchange of experiences in similar situations in which we find ourselves and the analysis of what we do and how we deal with it."
"The research showed me how quality interaction affects my stress level, but I realized that my mood and personal engagement greatly affect the quality of interactions. It's good for the whole group because I'm more positive and I pass on that energy to others."
"The well-being was also achieved by others around me – children and colleagues who participated in the activities by spreading feelings of comfort and satisfaction and building positive relationships. My family members and friends, with whom I spend more quality time in pleasant company, have also benefited."
"(…) my own well-being as the research benefit was also reflected in relationships with others, even with a colleague from work who, with my help, mastered the daily response to routine events. This resulted in our job satisfaction, and my sister helped me not to give up, which was reflected in some of her changes that she introduced during the process. My personal well-being is that I am more satisfied at work and that we as colleagues have connected even more."
"The research benefits are reduced stress and improved interactions with myself, children, colleagues and, to some extent, parents. Higher-quality interactions are the result of stress reduction."
"I find it interesting to note during this project that my more caring attitude towards myself has also activated members of my immediate family to make them aware of the need for more caring relationships (towards me and each other) (…)."
"Reflection on everyday activities during this project also strengthened my social relationships with my family members and encouraged me to think about the potential for greater social openness towards members of my environment (acquaintances, close friends, professional colleagues…)."

The category of *social well-being* (Table 5) includes the statements of preschool teachers showing that this action research also contributed to their relationships with others and to raising awareness of the need for environmental support in reducing

stress (Pavičić Dokota et al., 2020). This proved to be especially important for increasing their job satisfaction. In this process, the appreciation of other people's feedback (Lučanin, 2014), along with the cooperation of and support from key friends who help the action researcher improve the understanding, validity, and reliability of the research (Bulent et al., 2021), play a significant role, as pointed out by the preschool teachers in this study. *Job satisfaction* is another baseline value identified by preschool teachers, and it can be seen from their statements that it has been achieved in this category. This result is significant because personal well-being, satisfaction and preschool teacher cooperation enable the quality of educational work (Tatalović Vorkapić and Lončarić, 2013). Furthermore, it is essential to point out that the realization of their social well-being contributed to changes in the lives of their family members, friends, and colleagues, which is another important benefit of the action research (Whitehead, 1989).

The quantitative and qualitative results presented here point to a conclusion about the effectiveness of this action research at a personal level (stress reduction, better organization, self-commitment and family commitment, job satisfaction) and at the institutional level (improved communication, building positive relationships, better interactions, support), but also at the level of the community (more caring relationships with friends and acquaintances), which supports the previously established benefits that action research can yield to improve educational practice and create social change (Whitehead, 1989). This paper aims to address the need to organize a stimulating pedagogical environment in higher education and make positive changes in the life and professional development of students attending pedagogical study programs. Organizing experiential teaching through action research similar to this one presents an opportunity along the way.

Conclusion

Stress has become an ubiquitousfactor in modern life, and it is especially recognized in the educational profession. Therefore, this paper presents action research conducted in the higher education context to reduce stress in the preschool profession. The quantitative results showed that the action research significantly contributed to reducing stress in preschool teachers, while tthe qualitative indicators pointed to the multiple benefits that the action research produced in preschool teachers' private life and work.

Based on continuous reflection during the research, the preschool teachers concluded that higher education courses organized in the form of experiential learning proved to be a favourable pedagogical environment that provided stimulating conditions necessary to make positive changes in their life and work. Furthermore, preschool teachers concluded the action research enabled them to improve their physical and mental health, better understand themselves, their relationship with themselves and others, and their attitude towards work. They claim they developed various mechanisms for coping with stress and improved their social relationships. Finally, it can be said that preschool teachers achieved personal, emotional, and physical, as well as educational and social well-being, which was also reflected in the well-being of others. Therefore, these results support the previously established benefits that action research can have at the level of the individual, the institution, and the community

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LIFELONG LEARNING THROUGH THE PRISM OF EDUCATORS

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Abstract/Izvleček

Continuous professional development and training represent not only choices, but also an obligation and responsibility for every single educator. The aim of the research was to investigate the attitudes of educators working in kindergartens in seven counties of the Republic of Croatia, about the importance of lifelong learning. The research was conducted on a sample of 279 female educators, and a survey questionnaire was used as a measuring instrument. The results of the study indicate that educators are aware of the importance of lifelong learning and professional development. They emphasize that it enables them to develop competences and contributes to the improvement of their educational practice. The largest number of educators participate in professional training several times a year; they choose the form of training most often by the topic in which they are interested, and the form of professional training that best suits the needs of educators is the interactive workshop.

Vseživljenjsko učenje z vidika vzgojiteljic

Nenehno strokovno izpopolnjevanje in usposabljanje nista le izbiri, temveč predstavljata tudi obveznost in odgovornost vsakega pedagoga. Namen raziskave je bil raziskati stališča vzgojiteljic, zaposlenih v vrtcih v sedmih županijah Republike Hrvaške, o pomenu vseživljenjskega učenja. Raziskava je bila izvedena na vzorcu 279 vzgojiteljic, kot merski instrument pa je bil uporabljen anketni vprašalnik. Rezultati raziskave kažejo, da se vzgojiteljice zavedajo pomena vseživljenjskega učenja in profesionalnega razvoja. Poudarjajo, da jim strokovno izpopolnjevanje omogoča razvoj kompetenc in prispeva k izboljšanju njihove pedagoške prakse. Največ vzgojiteljic se strokovnih izobraževanj udeležuje večkrat letno, obliko izobraževanja najpogosteje izberejo glede na temo, ki jih zanima; oblike strokovnega izobraževanja, ki najbolj ustrezajo njihovim potrebam, pa so interaktivne delavnice.

Keywords:
educator, lifelong learning, professional development, professional development.

Ključne besede:
vzgojitelj, vzgojiteljica, vseživljenjsko učenje, profesionalni razvoj, strokovno izpopolnjevanje

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Introduction

Major changes in society caused by scientific and technological development have led to rapid obsolescence of existing knowledge, skills, and values. In response to these changes and the successful adaptation of the individual, the concept of lifelong learning was developed, and today we can say with certainty that it is essential for one's professional and personal growth and development. The educational system is focused at all levels on the development of competences, so that individuals can successfully deal with business challenges and be competitive on the labor market in their future work, having acquired the necessary knowledge and skills (Labak, 2020). Considering the increasing expectations and demands placed by society on modern educators, it is necessary for them to take responsibility for their own lifelong learning, because only by constantly learning, researching and reflecting on their practice, can educators optimally influence their own development, as well as the development and well-being of children.

Theoretical framework

The most commonly used definition of lifelong learning is that lifelong learning includes "all types of learning during adulthood with the aim of improving knowledge, skills and competences within the personal, civic, social or professional activities of individuals? (European Commission, 2000). In today's society, it is important that individuals have an in-depth knowledge of a specific field, and are willing to continue learning and broadening their knowledge, as well as making critical judgments and autonomous, responsible decisions in their future professional work (Boud, 2000; Vermunt and Donche, 2017, as cited in Šteh and Šarić, 2020). The digital literacy of adults stands out as increasingly important and necessary, owing to the use of the educational potential of digital media in adult learning and teaching. In the new multimedia environment, individuals have numerous new opportunities for developing competences for lifelong learning, while increasing their ability to think, create and participate effectively in society (Zovko et al., 2019).

Competences and professional development of educators

An educator is a professional who deals with the overall development of a preschool

child in an educational institution. His job requires him to possess, but also continuously develop numerous competences to help him to act actively and effectively in a certain situation. When defining the concept of competence, many authors agree that it represents a dynamic combination of knowledge, skills, and values, which allows them to act in various professional relationships (Vizek Vidović, 2009, Slunjski, Šagud, and Brajša - Žganec 2006). In 2006, the European Parliament issued official recommendations for eight key competences for lifelong learning, *Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competencies for Lifelong Learning*, which they claim are necessary for the personal and professional fulfilment of an individual, as well as for development, active citizenship and social inclusion. Most European institutions have accepted and integrated these competences into their strategic documents and curricula. The fundamental document in the preschool system in the Republic of Croatia - the National Framework Curriculum for Early and Preschool Education (MZOS, 2014), has accepted and integrated these key competences: Literacy competence; Multilingual competence; Mathematical competence and competence in science, technology and engineering; Digital competence; Personal, social and learning-to-learn competence; Citizenship competence; Entrepreneurship competence, and Cultural awareness and expression competence.

Professional development and training of educators

Professional development and training are the key to the quality of the educational process and the development of educators' competences. This can be defined as a continuous activity that includes various processes such as training, practice, and receiving/giving feedback. Such development is part of an education system in which adequate time and support are dedicated to teachers for their lifelong learning (OECD, 2009). According to Mendeš (2018), an educator's professional development can be described through three related cycles: Initial education, internship, and continuous professional development. The third cycle is one of the key determinants of the quality of the system of early and preschool education, which aims to develop and perfect acquired competences, and the professional development of educators should be based on it. It is the cycle that lasts the longest because it encompasses the lifelong learning and education of an individual (Mendeš, 2018).

Methodological framework

The aim and tasks of the research

The aim of the research was to examine the attitudes of educators working in kindergartens in seven counties of the Republic of Croatia about the importance of lifelong learning. In doing so, we investigated how educators assess the importance of professional training, how important they assess certain key competences for lifelong learning, what are the most common obstacles they encounter when participating in professional training, and which forms of professional training are best suited to their needs and interests.

Considering the aim of the research, the following research questions were set:

1. Is there a difference in attitudes about the importance of lifelong learning of educators regarding their age, work experience and qualifications?
2. Is there a difference in attitudes about the importance of certain key competences of educators regarding their age, work experience and qualifications?
3. Is there a difference in educators' attitudes about the obstacles to participation in professional training programs regarding their age, work experience and professional education?
4. How often do educators participate in professional training programs?
5. What forms of professional training are best suited to educators?

Based on the aim and the research questions, the following hypotheses were proposed:

H1: It is assumed that older respondents with more work experience, and higher qualifications will have more positive attitudes towards the importance of lifelong learning.
H2: It is assumed that there are no statistically significant differences in the expressed degree of importance of certain key competences for educators, with regard to the independent variables of age, work experience and qualifications.

H3: It is assumed that there are no statistically significant differences in the degree of agreement about the obstacles to participation in professional training programs, with regard to the independent variables age, work experience and qualifications.

Ethics in conducting research

When conducting the research, basic ethical principles were considered. The informed consent of the respondents was ensured, as well as notes on data confidentiality and voluntary participation. The right to privacy and the principle of minimal risk were ensured by the informed consent of the respondents and anonymous participation.

Research instrument

For the purpose of this research, the questionnaire was constructed by the researcher, based on the research of recent and relevant literature on the highlighted topic. The survey contains closed-ended questions and questions of a linear scale.

Data processing

For the purpose of this research, quantitative methodology was used. The collected data were edited and then processed and analysed using the SPSS statistical program. Descriptive statistics were performed; arithmetic mean, standard deviation, frequencies, and percentages, as well as the procedure of inferential statistics; Pearson's and Spearman's correlation coefficient.

Sample

In the study conducted during May 2023, a total of 279 respondents participated, educators employed in Early Childhood and preschool education institutions, in seven counties in the Republic of Croatia: Istarska, Međimurska, Primorsko-goranska, Splitsko-dalmatinska, Varaždinska and Zadarska County, and in the City of Zagreb.

Of the total number of respondents (N=279), 100% are female. The age of the respondents ranges from 21 to 64 years, while the average age is around 41 years (M= 41.7; SD= 10.39).

The largest number of respondents (N=212) have a bachelor's degree, while 64 respondents have a master's degree (N=64). None of the educators has a doctorate, while 3 of them have a secondary vocational education.
Out of the total number of respondents, the largest number of educators have more than 20 years of work experience, which is 32.6% of them. Moreover, 21.1% of these educators have 11-15 years of experience, followed by 18.3% of respondents with less than 5 years of work experience. Additionally, 14.7% of educators have between 5 and 10 years of work experience, and 13.3% possess 16-20 years of experience. Considering the county where they work, the largest number of respondents (N= 76) are employed in Splitsko-Dalmatinska County (27.2%), and the lowest number (N=15) in Međimurska County.

Research results and interpretation

Educators' attitudes towards lifelong learning

To examine the attitudes of educators about lifelong learning, a scale was created with twelve statements, through which respondents expressed their degree of agreement in the range of 1-5: 1 – strongly disagree, 2 - disagree, 3 - neither agree nor disagree, 4 - agree, and 5 - strongly agree. Table 1 shows the results on the scale of attitudes.
Analysis of the data show that the respondents evaluate all the items in the upper part of the theoretical range, that is, at the level of individual items, they consider professional training important. It should be taken into account that the fifth and seventh item are posed in a direction opposite from the others. From the obtained data, it is evident that educators express the highest degree of agreement with the statement that they consider lifelong learning and training important for the profession of educator (M=4.8; SD=0.53). Mendeš (2018) points out that lifelong education is the right, obligation, and responsibility for every educator. The statements on which educators show a very high degree of agreement are those that it is important for them to be informed about current topics and research in their profession (M=4.7; SD=0.66), that they are open to new ideas and changes in their educational work (M=4.7; SD=0.61) and that they develop their educational competences by participating in professional training (M=4.7; SD=0.60).

Table 1. Descriptive statistics for individual items of the Attitude Scale about the importance of lifelong learning

Variable	N	M	SD	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
				%	%	%	%	%
It is important for me to be informed about current topics and research in my profession.	279	4.7	.66	1.1	.4	3.9	15.4	79.2
I am open to new ideas and changes in educational work	279	4.7	.61	.4	.4	4.3	21.5	73.5
I consider lifelong learning and training important for the profession of educator	278	4.8	.53	.0	1.1	2.5	12.6	83.8
By participating in professional training, I develop my educational competences.	278	4.7	.60	.0	1.4	3.2	18.7	76.6
Professional training is usually not useful to me.	278	2.0	1.16	45.3	24.8	14.7	12.6	2.5
Participating in professional training contributes to the quality of my educational practice.	279	4.5	.71	.0	1.1	9.7	25.1	64.2
I mostly get involved in professional training because I have to.	276	2.3	1.26	36.6	22.5	20.7	14.5	5.8
It is important for me to have my personal professional training plan.	278	3.9	.97	1.8	5.0	27.7	34.2	31.3
I always learn something new at professional training that I can apply in practice.	278	4.1	.87	.7	4.7	16.2	442	34.2
Professional training motivates me to be an even better educator.	277	4,3	.83	.4	2.5	14.1	32.5	50.5
I often reflect on my practice and how I can improve it.	278	4.3	.76	.0	2.2	11.5	37.8	48.6
Professional training helps me to advance in my profession.	278	4.2	.96	1.4	4.7	14.4	29.5	50.0

A personal professional training plan can be used by educators to best adapt the offered training programs to their own needs and interests. Also, the personal training plan should be flexible and subject to change (Pavlic, 2015).

Table 2. Descriptive indicators for the Attitude Scale about the importance of lifelong learning

Variable	N	M	SD	Min	Q1	C	Q3	Max	α
The importance of lifelong learning	279	4.3	.52	2.3	4.1	4.4	4.8	5	.848

M –arithmetic mean; SD – standard deviation; Min – the lowest achieved result; Q1 – first quartile; C – the median; Q3 – the third quartile; Max – the maximum achieved result, a – Cronbach alpha coefficient

The results show that the scale has satisfactory reliability (Cronbach alpha=0.84) and that the average values of the scale are in the upper part of the theoretical range of the scale. To check the prerequisites for the implementation of parametric analyses, the following table shows the indicators of normality of the scale.

Table 3. Indicators of normality of the Attitude Scale on the importance of professional development

Variable	N	Skew	SE Skew	Kurt	SE Kurt	KS	KS p	SW	SW p
The importance of lifelong learning	279	-1.07	0.146	1.27	0.291	0.11	0.000	0.92	0.000

Skew – skewness; SE Skew – standard error of skewness; Kurt – kurtosis; SE Kurt – standard error of kurtosis; KS, KS p – statistic and p value of the Kolmogorov-Smirnov normality test; SW, SW p – statistic and p value of the Shapiro-Wilk normality test

The results of the normality analysis show that the scale is negatively asymmetric, and both normality tests show a statistically significant deviation from the normal distribution. Nevertheless, considering the absolute values of the index of flattening and curvature, and in accordance with the recommendations stated by Kline (2016) that the values of the index of curvature should not exceed 3, and the index of flattening should not exceed 7, parametric statistical methods were used to test the hypotheses.

To address the qustion *Is there a difference in attitudes about the importance of professional training of educators with regard to their age, work experience and qualifications?* Pearson's correlation coefficients were used. Since in the qualification variable only three respondents have a secondary professional education, two correlation coefficients

were calculated. Spearman's correlation coefficient was calculated for the total sample, while for the calculation of the Pearson's coefficient, the results of respondents with a high school diploma were excluded, and thus the variable was dichotomized. Pearson's correlation coefficient is equivalent to the t-test for independent samples when the variable has two levels (qualification), while for other variables it assumes a linear relationship between related variables.

Table 4. Correlation coefficients for the relationship between attitudes about the importance of professional development and age, work experience and qualification

No.	Variable	1	2	3[a]	4	5
1	The importance of professional training	1	.010	.065	.061	.022
2	Age	.010	1	-.187**	- .159**	.833**
3	Qualification[a]	.065	-.187**	1	-	-.222**
4	Qualification (HVE-HE)	.061	- .159**	-	1	- .216**
5	Years of work experience as an educator	,022	,833**	-,222**	- ,216**	1

*** p<0,01; [a] – Spearman's correlation coefficient*

The results show that none of the variables is statistically significantly related to the importance of professional training. In other words, Hypothesis 1 was disproved, which states *It is assumed that older respondents with more work experience, and higher qualifications, will have more positive attitudes towards the importance of lifelong learning*, since the results show that professional training is equally important to the respondents regardless of age, qualifications or work experience.

Attitudes about the importance of certain key competences to educators

To examine the attitudes of educators towards the importance of certain key competences (European Parliament, 2006), a list was created on which respondents expressed their attitude towards the importance of a certain competence on a scale of 1-5, with 1 - not at all important, 2 - slightly important, 3 - moderately important, 4 - very important, and 5 - extremely important. As in the previous analysis, descriptive indicators of individual particles were first analysed, as shown in Table 5.

Table 5. Descriptive indicators of the importance of certain competences

Variable	N	M	SD	Not at all important	Slightly important	Moderately important	Very important	Extremely important
				%	%	%	%	%
Literacy competence	279	4.6	.65	.0	1.1	5.7	25.4	67.7
Multilingual competence	279	3.3	.93	3.6	12.9	46.6	27.2	9.7
Mathematical, science, technology, and engineering competence	279	3.9	.92	1.1	4.7	24.4	38.0	31.9
Digital competence	279	3.9	.98	3.6	3.9	23.3	41.9	27.2
Personal, social, and learning-to-learn competence	279	4,4	,76	,0	2.2	10.0	29.0	58.8
Citizenship competence	279	4,5	,70	,0	1,1	9,0	31,5	58,4
Entrepreneurship competence	279	4,2	,79	,0	1,8	17,9	40,5	39,8
Cultural awareness and expression competence	279	4,5	,69	,0	1,1	7,9	28,7	62,4

The results show that the average values for all competences are above the theoretical middle range of the scale (3); that is, the respondents, on average, rate all the listed competences as at least moderately important. As expected, the highest average score was given for Literacy competence (M=4.6; SD=0.65); as many as 67.7% of educators state that this competence is extremely important. Šagud (2006) points out that one of the important ways of developing the professional competence of educators is precisely the building of the communication skills necessary in interaction with children, parents, and colleagues. In the early and preschool years, it is extremely important to strengthen communication in the mother tongue so that children can express their thoughts, feelings, and experiences. This is followed by the competence of Cultural awareness and the expression competence, which is considered extremely important by more than 60% of educators. About a third of the educators, 31.9% (M=3.9; SD=0.92), state that the science and technology competence is extremely important. In the first years of schooling, as well as in kindergarten, educators' support in the learning process is crucial. The learning process must be based on the child's natural curiosity, on learning about the child's experience and knowledge, the encouragement of cognitive conflict, and scaffolding in the process of its resolution (Blanuša Trošelj et al., 2021). The lowest estimates were obtained for the multilingual competence (M=3.3; SD=0.93), which is somewhat surprising since foreign language learning

programs have been encouraged and strengthened in kindergartens in recent years, given there are numerous biological and psychological benefits to learning a foreign language at an early age. In addition, the language policy of the EU is based on respect for language diversity in all the member states, and the teaching and learning of foreign languages are highly encouraged. Knowing foreign languages is considered a key factor that significantly increases education and employment opportunities (Velički i Aladrović Slovaček, 2020).

Before the statistical analysis, the normality parameters of the distributions presented in Table 6 were checked.

Table 6. Normality indicators of the importance of certain competences

Variable	N	Skew	SE Skew	Kurt	SE Kurt	KS	KS p	SW	SW p
Literacy competence	279	-1.60	0.146	2.26	0.291	0.41	0.000	0.64	0.000
Multilingual competence	279	-0.09	0.146	0.03	0.291	0.24	0.000	0.89	0.000
Mathematical, science, technology,	279	-0.60	0.146	-0.06	0.291	0.22	0.000	0.85	0.000
Digital competence	279	-0.87	0.146	0.73	0.291	0.25	0.000	0.85	0.000
Personal, social, and learning to learn	279	-1.24	0.146	0.86	0.291	0.35	0.000	0.72	0.000
Citizenship competence	279	-1.15	0.146	0.67	0.291	0.36	0.000	0.72	0.000
Entrepreneurship competence	279	-0.56	0.146	-0.52	0.291	0.25	0.000	0.81	0.000
Cultural awareness and expression	279	-1.32	0.146	1.15	0.291	0.38	0.000	0.69	0.000

Skew – skewness; SE Skew – standard error of skewness; Kurt – kurtosis; SE Kurt – standard error of kurtosis; KS, KS p – statistic and p value of the Kolmogorov-Smirnov normality test; SW, SW p – statistic and p value of the Shapiro-Wilk normality test

The results show that although the statistical tests indicate a deviation from normality, the absolute values of the index of curvature and flattening do not exceed the limit values of 3 and 7 (Kline, 2016). As with the previous analysis, Pearson's correlation coefficients were used, and for the sake of transparency, intercorrelations between variables are not shown, but the analysis is focused on the connection between the importance of individual competences and the target variables of the problem. The results are shown in Table 7.

Table 7. Correlations of age, qualifications, and work experience with assessments of the importance of individual competences

Variable	Age	Qualification[a]	Qualification (HVE-HE)	Years of work experience
Literacy competence	.006	.122*	.129*	.035
Multilingual competence	.002	.184**	.183**	- .011
Mathematical, science, technology, and engineering competence	.137*	.118*	.113	.127*
Digital competence	.044	.091	.074	.035
Personal, social, and learning to learn competence	- .080	.150*	.138*	- .081
Citizenship competence	.004	.171**	.152*	- .010
Entrepreneurship competence	- .007	.137*	.107	- .024
Cultural awareness and expression competence	- .008	.093	.107	.001

** p<0,05; ** p<0,01; [a] – Spearman's correlation coefficient*

In response to the research question, *Is there a difference in educators' attitudes about the importance of key competences with regard to their age, work experience and qualification?*, the results show that respondents with higher qualifications rate the literacy competence, and the multilingual competence as somewhat more important, compared to respondents with lower qualifications. The same result was obtained for competences on learning skills and on the citizenship competence. Since the age and work experience of educators are highly correlated (0.833), their results are similar, and it is shown that older respondents, that is, those with more work experience, assess competences related to mathematics and science as more important. For the qualifications variable, in the calculation of the Pearson correlation coefficient, only the results of respondents with higher qualifications were used. When the results for respondents with lower qualifications are included (N=3), statistically significant positive associations between qualifications and assessments of the importance of mathematics and science competence as well as the entrepreneurship competence were obtained. In the case of other competences, no differences were obtained with regard to the analysed variables; that is, the respondents evaluate these competences as equally important regardless of age, qualifications, or work experience, which partially confirms Hypothesis 2: *It is assumed that there are no statistically significant differences in the expressed degree of importance of certain key competences for the profession of educator, with regard to the independent variables of age, work experience and qualifications. Attitudes regarding obstacles to inclusion in professional training programs.*

To examine the attitudes of educators about obstacles to inclusion in professional development programs, a scale consisting of 13 items was created, on which the respondents expressed their attitude on a scale of 1-5 (1 – strongly disagree, 2 - disagree, 3 - neither agree nor disagree, 4 - agree, and 5 - strongly agree).

Table 8 shows the results on the scale of attitudes. Analysis of the results shows that the respondents are motivated for lifelong learning and participation in professional training programs, and 58.8% of educators strongly agree with the statement that they feel ready for lifelong learning (M=4.5; SD=0.77). According to Šagud (2005), it is precisely the readiness of educators for professional development that is a key component for the development of professional competences, which are important for the professional achievement of educators. Furthermore, a high degree of agreement is also evident with the statement that educators consider most professional training useful (M=4.2; SD=0.78). As for the obstacles related to the cost of professional training, there is a visible dispersion in the answers to the statement that the cost of professional training is the main factor in their participation (M=3.2; SD=1.25) and to the statement that quality professional training is usually too expensive for educators (M=3.5; SD=1.29). A high degree of agreement among educators is evident in the statement that they mostly participate in professional training that is free (M=4.1; SD=1.11).

The personal professional development of educators is largely determined by their motivation and engagement, but finances also play a significant role in choosing professional training, a situation that can limit educators in choosing training in which they are genuinely interested and/or find useful. The biggest disagreement is observed with the statement that educators feel insecure in the process of learning something new (M=1.8; SD=0.8). The essential characteristics of a good educator include openness to new experiences, a tendency to challenges, changes, and innovative ideas, as well as an increased level of creativity.

Table 8. Descriptive indicators of the particles of the Attitude scale about obstacles to participation in lifelong learning programs

Variable	N	M	SD	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
				%	%	%	%	%
I feel ready for lifelong learning.	279	4.5	.77	1.1	.7	8.2	31.2	58.8
I mostly participate in professional training that is free.	279	4.1	1.11	5.7	3.2	15.1	31.5	44.4
Lack of free time is a big obstacle to my lifelong learning.	279	3.5	1.17	9.7	8.2	24.0	40.1	17.9
I find most professional training useful.	279	4.2	.78	.4	1.4	14.3	40.9	43.0
If it wasn't obligatory, I wouldn't be involved in professional training.	279	1.8	1.01	55.2	21.9	15.4	6.1	1.4
The cost of professional training is the main factor in inclusion.	279	3.2	1.25	15.1	10.8	33.0	25.8	15.4
Quality professional training is usually too expensive for me.	279	3.5	1.29	10.0	12.2	25.8	24.4	27.6
Professional training takes up too much of my time.	279	2.4	1.16	30.1	25.4	26.5	14.0	3.9
I prefer online forms of professional training because I can learn from home.	279	3.8	1.17	5.7	8.6	22.9	30.1	32.6
I have the support of my employer for lifelong learning.	279	3.9	1.14	5.7	5.4	16.8	32.3	39.8
Professional training is not interesting enough for me, and I believe that I have no use for it.	279	1.7	.94	56.6	23.7	14.0	5.0	.7
I feel insecure in the processes of learning something new.	279	1.8	1.16	58.4	15.1	15.8	6.8	3.9

Table 9. Descriptive indicators of the readiness scale for participation in professional training programs

Variable	N	M	SD	Min	Q1	C	Q3	Max	α
Attitude towards lifelong learning	279	3.4	.55	1.8	3.1	3.4	3.8	4.8	0.730

M –arithmetic mean; SD – standard deviation; Min – the lowest achieved result; Q1 – first quartile; C – the median; Q3 – the third quartile; Max – the maximum achieved result, a – Cronbach alpha coefficient

The results show that the average results of the scale are around the theoretical middle of the scale (3), which indicates heterogeneity in the degree of readiness for inclusion in professional development programs; that is, the respondents report certain limitations for inclusion in professional development programs. The scale has satisfactory reliability: Cronbach's alpha is 0.73. Before further analysis, indicators of normality of distribution were checked.

Table 10. Indicators of the normality of the readiness scale for inclusion in professional training programs

Variable	N	Skew	SE Skew	Kurt	SE Kurt	KS	KS p	SW	SW p
Readiness to participate in professional training programs	279	-0.09	0.146	-0.08	0.291	0.05	0.200	1.00	0.482

Skew – skewness; SE Skew – standard error of skewness; Kurt – kurtosis; SE Kurt – standard error of kurtosis; KS, KS p – statistic and p value of the Kolmogorov-Smirnov normality test; SW, SW p – statistic and p value of the Shapiro-Wilk normality test

The results show that no statistically significant deviation from the normal distribution was obtained according to both tests of normality, and therefore a further correlation analysis was performed, as shown in Table 11.

Table 11. Correlation coefficients for readiness to participate in professional training programs by age, work experience, qualifications

No.	Variable	1	2	3[a]	4	5
1	Attitude about lifelong learning	1	.143*	.176**	.155*	.147*
2	Age	.143*	1	-.187**	- .159**	.833**
3	Qualifications[a]	.176**	-.187**	1	-	-.222**
4	Qualifications (HVE-HE)	.155*	- .159**	-	1	- .216**
5	Years of work experience as an educator	.147*	.833**	-.222**	- .216**	1

** p<0,05; ** p<0,01; [a] – Spearman's correlation coefficient*

The results show that all three variables are statistically significantly related to the readiness to participate in professional training programs. At the same time, respondents who are older, have more work experience and higher qualifications are more ready to be included in professional training programs. Taking that into consideration, Hypothesis 3, which assumes that *there are no statistically significant differences in the degree of agreement about obstacles to the inclusion of educators in professional training programs*, has been disproved with regard to the independent variables of age, work experience and qualifications.

Other variables

Regarding the frequency of participation in professional training programs, the results show that educators participate in professional training on average several times a year (N=114), while 89 of them participate on average once a month (N=89). Three educators stated that they did not participate in professional development programs at all (N=3).

With regard to how educators obtain information about opportunities for professional training, the largest number of educators (N=136) independently research this information via the Internet. About a third, 30.1% of educators (N=84), receive that information from their professional associates, while the rarest way to obtain information is from their colleagues (N=27).

In order to determine which forms of professional training best suit the needs of educators, that is, which types they consider to be high-quality and effective for their lifelong learning, a 5-point Likert-type scale was created, on which educators indicated the extent to which a particular form of professional training suited them: a sore of 1 indicated that it did not suit them at all and 5 that it suited them completely. Table 12 shows the results of the attitude scale.

The highest degree of agreement was obtained for interactive workshops, given that more than half the educators (53.6%) stated that this was the format that suited them completely. This result is not surprising since workshops, along with seminars, are the most common form of professional training that teaches educators new forms of practice, new methods and approaches in educational work (Slunjski, 2016). Such workshops also encourage collaborative and experiential learning, while the key goal of interactive workshops is to acquire practical skills that participants will use in the work and life environment (Martinko, 2012).

Table 12. Forms of professional training that meet the needs of educators

Variable	N	M	SD	Does not suit at all	Mostly doesn't suit	Neutral	Mostly suits	Completely suits
				%	%	%	%	%
Lectures	275	4.0	.81	1.5	3.6	11.6	57.5	25.8
Seminars	276	4.0	.80	.4	4.3	16.7	51.4	27.2
Interactive workshops	276	4.4	.83	.7	2.9	9.8	33.0	53.6
Online learning	274	4.2	.96	1.8	4.7	13.5	33.6	46.4
Learning groups	274	3.8	1.00	1.5	8.8	24.8	34.7	30.3
Supervision	273	3.4	104	4.8	11.4	39.6	27.8	16.5
Visitation	273	3.5	1.02	4.8	8.1	41.0	29.3	16.8
Work on projects	276	4.0	.94	2.5	2.5	21.7	39.1	34.1
Action research	276	3.8	1.04	3.6	5.8	29.0	33.3	28.3
Professional literature	278	4.2	.82	.7	2.2	14.0	41.4	41.7

The highest degree of agreement was obtained for interactive workshops, given that more than half the educators (53.6%) stated that this was the format that suited them completely. This result is not surprising since workshops, along with seminars, are the most common form of professional training that teaches educators new forms of practice, new methods and approaches in educational work (Slunjski, 2016). Such workshops also encourage collaborative and experiential learning, while the key goal of interactive workshops is to acquire practical skills that participants will use in the work and life environment (Martinko, 2012).

A high degree of agreement can also be noted in the case of online learning (M=4.2; SD=0.96) and the study of professional literature (M=4.2; SD=0.82). Online learning is a modern form of training, which, especially during the global epidemiological situation caused by the corona virus, has become a frequently used medium among educators. Although the results show that many educators prefer online learning, there are also those who resist this approach, and some of the reasons can be identified in the low level of digital competence, as well as the weaker technological equipment of preschool institutions (Celizić and Zovko, 2021). Supervision (16.5%) and visitation (16.8%) proved to be the least desirable forms of professional training, which did not meet the needs of educators.

Conclusion

The results of this study indicate that educators are aware of the importance of lifelong learning and professional training. They realize that it benefits them in their work and in strengthening their competences. Since educators partially agree that high-quality professional training is expensive, and takes up a lot of free time, it is necessary for Early and Preschool education institutions to do as much as possible to motivate educators to participate. To do so, they must recognize educators needs and interests, and accordingly organize as many professional training events as possible. The employer's support for lifelong learning is especially important, so it would be significant to increase flexibility in terms of timing the professional training, but also to reduce costs in order to involve as many educators as possible in lifelong learning processes. In so doing, educators could be more successful in responding to the numerous requests and challenges that this profession brings.
The significance of this research lies in its assistance in making educators aware of their needs and interests related to professional development and lifelong learning, but it can also be useful to the professional team and directors to better understand the needs and expectations that educators have from professional development, which could form the basis for building a better educational practice. In future research on this topic, it would be interesting to investigate the role of educators, as well as parents, in encouraging key competences for lifelong learning in early and preschool children.

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STUDENT PERCEPTION OF ASSESSMENT IN THE TEACHING AND LEARNING PROCESS OF ART EDUCATION

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Abstract/Izvleček

This paper discusses the importance of the learning and teaching process in art education in light of the accepted methods for establishing criteria for evaluating student achievement. The complex experience of art education is difficult to measure based on scales that use ambiguous verbal categories and standardize the image of the student in an activity intended for the opposite: to express what is unique to each individual in an artistic way. Some assessment strategies are presented, as well as a questionnaire with various student opinions about assessment, alongside the factors that influence these opinions.

Keywords:
art education, assessment, evaluation, learning styles, grades.

Učenčevo dojemanje ocenjevanja v procesu poučevanja in učenja likovne umetnosti

Prispevek obravnava pomen učnega in poučevalnega procesa v likovni umetnosti v luči splošno sprejetih metod za oblikovanje meril za vrednotenje dosežkov učencev. Kompleksno doživljanje likovne umetnosti je težko meriti na podlagi lestvic, ki uporabljajo dvoumne verbalne kategorije in standardizirajo podobo učenca v dejavnosti, ki je namenjena nasprotnemu: likovno izraziti tisto, kar je za vsakega posameznika posebno. Predstavljenih je nekaj ocenjevalnih strategij in vprašalnik z različnimi mnenji učencev o ocenjevanju ter dejavniki, ki na ta mnenja vplivajo.

Ključne besede:
likovna umetnost, ocenjevanje, vrednotenje, učni stili, ocene.

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Introduction

The ideological assumptions that shape the foundations of our school system point to the priority of subjects that express logical-analytical, mathematical thinking and the ability to express oneself verbally, while artistic-aesthetic experiences and expression in different languages are relegated to the background. Gardner's widely accepted theory of multiple intelligences, according to which there are linguistic, musical, logical-mathematical, spatial, motor, interpersonal, and intrapersonal intelligences, was developed more than twenty years ago (Gardner, 1993). Despite regular updates, our curriculum still does not include certain current findings in the area of learning. Today, with the knowledge and development of various technologies, it is a necessary moral imperative of schools that students have the opportunity to develop different kinds of intelligence. The student develops diverse kinds of intelligence according to his natural gifts and abilities. Certainly not all students or to the same degree, for only they can discover and use their potential.

The relationship between instruction and what is learned as a result is complex. Today's concept of knowledge goes far beyond the mere knowledge and understanding of facts and contexts. Today, learning is defined as any acquisition or modification of knowledge, information, understanding, attitudes, skills, abilities or behaviour through experience, practice, teaching, or study (Kožuh and Plazar, 2021). Even when instruction is well designed and students are motivated, increases in student capabilities are usually impossible to predict with any certainty. Moreover, this observation does not depend on any particular view of what happens when learning takes place (Wiliam, 2014).

A group of learners is a group of individuals who have different experiences, abilities, interests, and inclinations. Each can construct the meaning of the knowledge they acquire in their own way and in accordance with their own experiences. Such an approach, which supports connections between different content and perceptions in order to establish the transfer of mental strategies, necessarily considers individual interests and different abilities of individuals (Seagal and Horne, 2002).

Just as it is necessary to develop flexible, alternative, and highly dynamic instructional strategies, it is also essential to develop flexible, individualized ways of assessing and evaluating the knowledge demonstrated through art products. Visual arts education assessment should be in line with the contemporary demands of students, their needs, and interests.

A considerable number of respectable authors in the field of pedagogy, psychology and art (Arnheim, 1974; Efland, 2002; Eisner, 2002) point to the importance of art in personal development and highlight the unavoidable needs of today's society, such as visual literacy and creative expression. In the implementation of the educational process, considerable importance is also given to the quality development of interaction-communication activities between teachers and students, activities that are fundamental within assessment (Tomljenović, 2018). The aim of art education is to encourage attention, visual observation, visual thinking, evaluation of the new, critical faculties, development of imagination and personal creativity. The experience of artistic expression also requires critical and informed evaluation of various artistic phenomena, from artistic to everyday visual stimuli in our common habitat.

Indeed, assessment can be thought of as the bridge between teaching and learning—only through some kind of assessment process can we decide whether instruction has had its intended effect. Such assessment can be conducted at the end of the instructional sequence, but in recent years there has been increasing interest in the idea that assessment might be used to improve the process of education, rather than simply evaluating its results (Wiliam, 2014).

Life experiences are constantly interwoven with the school experience of artistic thinking and creation. The artistic knowledge acquired is implemented in the repeated act of artistic expression in all areas of artistic creation. Important goals are achieved in a multi-layered process of knowledge acquisition through the development of various thinking strategies, through the connection of theory and practice, and through the ability to think and judge creatively and critically (Arnheim, 1993, Dweck, 2006).

Taking this into account, assessment and evaluation of the goals achieved is a process that involves both student and teacher. We know that students of all ages vary greatly in their ability to observe, think, and imagine, and that everyone can be creative regardless of their artistic talent. Creativity at all stages of the artistic expression process is what we want to achieve as an outcome of art education (Cunliffe, 2005).

The key question we address in this paper is how students perceive assessment and evaluation in the context of the teaching-learning process. The responses to a survey instrument in the form of a questionnaire helped us gather the information that is presented here.

The Process of Assessment and student learning styles

Evaluation means determining the value of something, grading, or assessing something. Furthermore, the focus on predetermined evaluation objectives assumes they are formally identified in the planning phase of the intervention and that clear, specific indicators of success have been developed. An additional problem in defining evaluation is the interpretation of the results that help decide on future modes of action – whether about the development of specific programs or the development of databases of evidence in general (Morrison, 1993).

It is important that during the pedagogical process the teacher consider the level of existing understanding and knowledge of the specifics of art concepts, the ability to handle art materials and tools, the specifics of artistic development according to age level, the student's style of expression and learning style. But the student's emotional responses - deep, sensitive reactions to experience - are also particularly important because they foster the self-confidence that strengthens breadth in the expression of ideas, while sparking enthusiasm. The right amount of rational thinking on an emotional basis supports the spontaneous formation of images with artistic materials (Blackwell et al., 2007, Nussbaum et al., 2007, Dweck, 2006, Karlavaris, 1991, 1988). Each student can use the acquired knowledge in accordance with his or her own personality traits, which are manifested in the way or style of learning, expression, and response to different learning situations. We can define students' preferences at various levels and call them learning styles. Several authors have proposed different definitions of learning styles, e.g. Kolb (1985), Fleming (1992), and Sternberg (2001, 2005). In this case, we will rely on Kolb's definition based on experiential learning, which is the basic teaching method in art education.

Although any strict classification of students from the point of view of work in a specific class is meaningless and almost impossible, a description of diverse ways of working is certainly welcome as an introduction to the complex question of assessment. The teacher must establish the peculiarities of the students, so that he can give advice and objectively evaluate student work (Kolb, 1985).

Students who like to actively experiment and swear by concrete experience often rely on intuition more than logic in an art assignment. Although they know how to react to unexpected circumstances, it may happen that they can prematurely end the search, or they are too quick to settle for a result that could be significantly better.

In this case, the teacher has the task of broadening the student's horizons in an empirical way, showing consequences and possibilities that were foreseen, and directing them to an appropriate evaluation of the work.

Students who always start from a concrete experience based on which they observe phenomena thoughtfully look at things from different angles and are very receptive, but they prefer to observe rather than participate. The teacher should help them to examine the range of information and direct them towards a unified project, in which all the elements of rich observation should be present.

Students who actively experiment but form an abstract conceptualization of the problem based on the empirical element, look for practical and useful aspects of learning, react quickly and approach the matter as if they had to solve a technical problem. In this case, it is necessary for the teacher to show all the diversity of the components of the art activity that the student has to deal with, to guide him in an emotional attitude towards the solution of the art task, so that he has the opportunity to discover other aspects of the work and his own personality.

Students who first observe thoughtfully and then conceptualize abstractly are logical types. Abstract ideas, concepts and logical explanation are the most important aspects of solving the task. In this case, too, the practical aspect of solving an artistic task should be emphasized.

There is no model that is definitive: it means only the main orientation and detection of personal characteristics in learning, which are crucial in the evaluation and assessment of achievements. Each learning style has its good and bad sides (especially if it develops exclusively). Good qualities must be developed, built on, and bad qualities eliminated. A person should also develop his weak areas to some extent because quality learning connects and integrates all fields or modalities. Integration, not specialization, is the desired goal of an individual's personal development.

These characteristics of learning styles and the teacher's task of guiding the individual student to the most appropriate outcome in the educational process are an effective guide for understanding learning problems, for individual counselling, and finally, more importantly, for the elements of individualization of instruction that are crucial for the evaluation and assessment of student performance.

The importance of the process of learning and teaching in the light of criteria for evaluating student achievements

Key goals are achieved in art education through a multifaceted process of acquiring knowledge by developing diverse thinking strategies, by connecting theory with practice, and by the ability to think creatively and critically. Art products are witnesses to the teaching and learning process in the classroom and tell us about how it took place.

An individual art product is an expression of two communication processes: one that takes place within the student and regulates the input of all data for the realization of the art task, and the other that takes place between the teacher and the student in a predominantly individualized process of on-the-spot evaluation and guidance. Precise criteria should be taken into account for the evaluation of this process. The evaluation of knowledge is therefore a complex process for both the teacher and the student, considering his learning style and other characteristics of his individuality (Nussbaum et al., 2007).

People explain their own successes or failures to themselves in diverse ways. Some factors that lead to success or failure are controllable and some are not. Examples of factors that a learner might feel able to control include how much effort they make and how interested they are in the subject. Non-controllable factors include luck or the amount of help the learner receives from the teacher (Dweck, 2006).

Karlavaris (1991) says that the student's progress is determined by the teacher together with the student according to the following criteria: the student's ability to match artistic expressions with the style and purpose of the art work, the ability to use the acquired knowledge, listening for measure and order, and the development of learning and work habits, originality of artwork, ability to evaluate artwork, technical execution and diligence. The author adds three more aspects of the analysis of works of art: from a psychological point of view, we determine whether the artwork is in accordance with the general level for a certain age, with the differences in children's temperament and with relationships in the environment.

Assessment allows both instructor and student to monitor progress towards achieving learning objectives and can be approached in a variety of ways. Formative assessment refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps.

It includes effective tools for helping to shape learning and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the teacher, through writing, conversation, and other means. In short, formative assessment occurs throughout a class or course and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Objective assessment based on criteria that consider only the technical aspects of performing art tasks does not fully reflect the relationship between the teaching and learning process and the major goals of art education. Additionally, criteria often help to measure the student's attitude towards the subject and the teacher.

Sometimes criteria rely strongly on summative assessment. Summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to significant effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches (Angelo and Cross, 1993).

Approaches to the assessment of knowledge from the perspective of student individuality

Definitions of this aspect are never definitive because a child can develop in different directions. The pedagogical aspect includes freedom, the openness of the child to the teacher, the influences of parents in shaping taste, the student's attitude towards the pedagogical process and his interest. The aesthetic aspect, on the other hand, is defined by the intensity of experiencing the motif, natural artistic ability, technical level of execution and knowledge of artistic concepts.

Duh (2004) talks about the student's progress and understands evaluation and assessment as a process that is inseparable from learning and creation. This means that many factors must be distinguished: evaluation as the activity of checking the achievement of certain goals, e.g. the goals of the art task based on the evaluation criteria derived from these goals, the broader process of the student's progress, and the previously mentioned aspects of the analysis of art works for understanding the student's work.

The definitions of creativity are complex and include various aspects that develop very differently in different people. Creativity factors include originality, flexibility, fluency, elaboration, sensitivity to visual problems, and redefinition (Karlavaris, 1988). The combination of these factors changes with personal development. Not all of us are equally creative; the factors that influence this require individual treatment by the teacher. According to the assessment criteria presented, willingness to accept artistic information is an aspect of the student's positive responsiveness. It should be expressed with enthusiasm, pleasure, and joy. Enthusiasm does not necessarily indicate the quality of the art product, and lack of enthusiasm does not necessarily have anything to do with responsiveness. It would be unrealistic to expect all students to approach all art tasks with pleasure and enthusiasm. However, this is not a reason for a lower grade. The same could be said about motivation, which is another important aspect of planning activities. The factors of motivation vary, but not all of them are within the student's control. Therefore, we cannot evaluate the student for something that the teacher should initiate and cultivate during all activities. Accepting encouragement may mean that the student does exactly what the teacher tells him to do; it may also mean that he takes note of the encouragement and finds his own solution to a particular problem. Responsiveness varies under different circumstances and is closely related to the individuality of the student.

For many students, effort is a positive thing and causes them to grow. In the face of failure, these students escalate their efforts and look for new learning strategies (Blackwell et al., 2007, Nussbaum and Dweck, 2007).

We teach to suggest ways to solve problems through the transmission of knowledge, and because we believe that all these processes are a path for personal and social growth, despite the demand for a one-word final grade (Smith Shank, 1994).

Art education does not end with descriptive or numerical assessment, but with the recognition of experiences that teach students to look and see, to encode and decode, to be critical and responsible users and creators of the visual world. It is difficult to measure these complex experiences based only on scales that use verbal categories (often ambiguous) and standardize the image of the ideal student in an activity that is intended to do just the opposite, to express in an artistic way what is special for each person.

How do students perceive the process of assessment and evaluation?

Methodology

The problem and the objectives of the research

Art classes formally end with an assessment that summarizes the evaluation of performance based on criteria derived from the goals of the art assignment. The final grade, in addition to the evaluation of artistic products, is based on the evaluation of overall progress, the student's attitude toward the work and the subject, and success in various art areas.

We were interested in how visual arts assessment and evaluation in elementary school is perceived by those being assessed. The complex of factors mentioned above was the primary motive for the survey we conducted among first-year students in four secondary schools. At the beginning of the first school year, memories of elementary school are still fresh, and the process of learning has been completed.

Survey Instrument

For the study, we designed a survey instrument that consisted of a questionnaire with sixteen statements that students rated using a five-point scale to formulate their responses. After completing the survey, we had an open talk where students commented on their responses. We kept a diary to record the data so that we could better understand and discuss the results.

The sample

Ninety-one first-year students from four different high schools completed the survey. In this way, we were able to ensure a diverse population, which improved the validity of the study.

The course of the study

Students completed the anonymous survey in September 2022, after they had finished elementary school and before they had adjusted to the new high school environment. Participation was voluntary and with parental consent.

Results and Discussion

Results were scored on a five-point scale ranging from "strongly disagree" to "strongly agree." Each response was worth one point for the selected category. In this way, we obtained the results presented in Table 1 in percentages. After conducting the survey, we talked with students to find out why they answered as they did. We kept a diary to record the data so that we could better understand and discuss the results. The data from the diary helped to formulate the discussion that is presented after each set of results.

Table 1: The survey instrument, the results and discussion, 1st part, statements 1 to 4

Statements	1. The grade was important because it raised the overall average.	2. The grade objectively represents the quality of your work.	3. You always understood why you received a certain grade and the evaluation criteria.	4. You think that most students generally got grades that were too high.
Results	%	%	%	%
I strongly disagree	5.5	7.7	12.1	5.5
I disagree	8.8	25.3	14.3	38.4
I partly agree	11	34	22.0	31.9
I agree	28.5	25.3	27.5	13.2
I strongly agree	46.1	7.7	24.1	11

74.6 percent of students agreed with the first statement, 11 percent partially agreed, and only 14.3 percent disagreed. Most students needed a good grade point average to enrol in their desired secondary school. The general opinion of students is that it is easier to get a good grade in fine arts than in "difficult subjects." Therefore, students saw a general advantage in getting a good grade. In any case, this is an understandably objective response.

Regarding the second statement, one-third of the students disagree with this statement, another third partially agree, and one-third agree. Those who disagree with this statement indicated that their work was undervalued, that they tried, and that was not reflected in the grade. The others felt that the evaluations were fair and objective. In any case, a sizeable percentage was accounted for by those who partially agreed. Partial agreement means that they are not convinced of the objectivity of the evaluation in all cases. Sometimes they believe that if you have the ability, you should

not need effort, and the mark should effectively show their qualities, that ability should yield success all by itself (Blackwell et al., 2007). The question is how students construct their idea of objectivity regarding the evaluation of their artwork.

Regarding the third statement, 26.4 percent disagreed with it, 22.0 percent partially agreed, and 51.6 percent agreed or strongly agreed. It is interesting that approximately a quarter of the students did not understand the criteria by which they were evaluated. This could be regarded as a passive attitude from the students towards effective comprehension of how they were evaluated or how criteria were formulated in a comprehensible way that all students could understand. It could also be that what matters is the final mark not so much the criteria for evaluation. Nevertheless, this is a theme that also involves teachers, who should always ensure that the criteria for evaluation are understood by every student.

In response to the fourth statement, 43.9 percent of students responded that they disagreed, 31.9 percent responded that they partially agreed, and 24.2 percent agreed. Comments focused on the fact that most students expected a high score and therefore disagreed with the assertion. The remainder indicated that it was not difficult for them to achieve a high score; therefore, they did not think that the score was generally too high. The differences in responses are relatively large. It is likely that there are large variations in the scoring methods because the students had different teachers. We can infer that some teachers were more generous with grades, while others were stricter.

Table 2 (continuation): Results and discussion, 2nd part, statements 5 to 8

Statements	5. You think that most students generally got grades that were too low.	6. If your grades were good, that meant personal satisfaction.	7. A good grade confirmed your talent in the field of art	8. You think that many students underestimate marks from fine arts.
Results	%	%	%	%
I strongly disagree	13.2	2.2	2.2	5.5
I disagree	11	4.4	3.3	13.2
I partly agree	22	27.5	27.5	29.7
I agree	25.3	34	30.8	31.8
I strongly agree	28.5	31.9	35.3	19.8

53.8 percent of the students agreed with the fifth statement, while 22 percent partially agreed. 24.2 percent disagreed. The responses indicate an expectation that

grades in art must be high, no matter what. This expresses a kind of underestimation of the subject and a general stereotyped belief that you must get good grades in art. Some students said they had more than one art teacher. Different teachers graded very differently.

The majority of students, 65.9 percent, agreed with the sixth statement, while 25 partially agreed and only 6.6 percent disagreed. Thus, for a minority, the evaluation had no relevant meaning. In these few cases, the students might not have liked the subject, were not motivated or had a generally negative attitude toward school. All the rest showed a very positive attitude towards the subject.

In response to the seventh statement, 56.1 percent of students, believe that a good grade is related to talent in the artistic field, 27.5 partially agree, and only 5.5 do not believe that a good grade confirms talent. It is interesting to note that the majority of students do not understand the factors for a good grade, i.e., completing the task considering the evaluation criteria set before the work, and still believe that if you are talented, you will get a good grade and will be praised. Thus, many students remain unaware of why they received a certain grade. Praising students gives them a short burst of pride (Dweck, 2007, Cimpian et. al., 2007). Nevertheless, it would be good for at least most students to understand that good grades are the result of responding to criteria set before starting the work. About the eighth statement, 18.7 percent of students do not believe that students in general underestimate the grade, 29.7 partially agree that students underestimate the grade in art, and 51.6 agree that students underestimate the grade. This number is quite high and could reflect that a large number of students are not interested in grades or do not care about the subject. Half of all students do not underestimate the grade.

In response to statement nine, 33 percent agree that teachers do not underestimate the grade, 23.1 partially agree, and 42.9 percent agree that many teachers underestimate grades. Comments ranged from "the teacher gave everyone a 5", to "even if you did not do much, you got a good grade", to "my teacher was strict and did not just give good grades." Students think that teachers function in diverse ways regardless the criteria for success set for any task--which should not be happening.

In responding to statement ten, 39 percent of participants agree that parents do not underestimate the grade in art, 27 percent partially agree that parents underestimate the grade, and 27.5 percent agree that parents underestimate the grade.

Table 3 (continuation): Results and discussion, 3rd part, statements 9 to 12

Statements	9. You think many teachers underestimate the grades in the fine arts.	10. You think your parents underestimate the grades from fine arts.	11. Parents were happy about good grades in fine arts as well as good grades in "important subjects."	12. The assessment in fine art was as important to you as the assessment in "important subjects."
Results	%	%	%	%
I strongly disagree	8.8	19.8	13.2	11.0
I disagree	25.2	23.1	7.7	18.7
I partly agree	23.1	29.6	13.2	20.9
I agree	26.4	17.6	35.2	28.6
I strongly agree	16.5	9.9	30.7	20.8

Student comments included that parents pay more attention to grades in "important subjects," that they complain when their child's grade is not good, that they think the subject is easy and the child should get a good grade, and that some parents do not support students who are interested in the subject. Many parents are not acquainted with evaluation criteria and think that if their children "can draw nicely," it means they are talented, and deserve good grades.

In response to statement eleven, 20.9 percent disagree that parents are as satisfied with a good grade in art as they are with a good grade in the "important subjects," 13.2 partially agree, and 65.9 percent agree with the statement. Parental satisfaction is a highly motivating factor for the students. It shows that they take the process of learning at school as a whole without differentiating between subjects. The contrary can create pressure for the students and can demotivate them for work in subjects, as fine art is, in their opinion an "unimportant subject."

In response to statement twelve, 29.7 percent of students disagree that a grade in art is as important as a grade in an "important subject," 20.9 partially agree, and 49.4 agree. Lack of motivation from parents, a school climate that does not fit the interests of some students, the fact that some students may not like the subject, or feel unsuccessful all can result in their banking on good grades in other subjects. In general, for a student to be regarded as talented, grades from all subjects must be considered. No student is regarded as talented because he is brilliant just in art.

63.8 percent disagree with the thirteenth statement that "they do not care about opinions on grades because grades are not important". These results again reflect that student do in fact care about grades and assessment. The opinion of the teacher is important for them.

Table 4 (continuation): Results and discussion, 4th part, statements 13 to 16

Statements	13. You are not interested in grades. They are not important.	14. You would work in fine arts even if there were no grades. Fine art relaxes you and makes you happy.	15. Success in the fine arts makes you just as happy as success in other subjects.	16. You think that the subject fine arts was important for your personality formation and the development of your creativity, and the assessment confirms this.
Results	%	%	%	%
I strongly disagree	39.6	5.5	3.3	6.6
I disagree	24.2	18.7	12.1	8.8
I partly agree	17.6	12.1	18.7	25.3
I agree	11.0	34.1	34.1	30.7
I strongly agree	7.6	29.6	31.8	28.6

They would behave differently if there were no grades. 17.6 partially agree and 18.6 agree that grades are not important. This answer could reflect that students are prepared to work regardless of the grade.

Nevertheless, 24.2 percent disagree with the fourteenth statement that they would do the same work if there were no grades because art relaxes them and makes them happy. 12.1 partially agree and 63.7 say they would do the same. For some students, the grade is an external motivator: they would not work without the grade. A sizeable proportion of students obviously find the subject a source of pleasure and relaxation and work sincerely without being burdened by the grade. Aronson et al. (2002) confirm this as they found an increase in students' valuing of academics when they enjoyed schoolwork, and then their grade point averages were not the main preoccupation. Students said that they liked the fact that in art they do practical work, with materials and tools, as compared to other subjects where many things must be memorized.

15.4 disagree with the fifteenth statement that "success in the fine arts makes them just as happy as success in other subjects." 18.7 partially agree and 65.9 agree. For the majority of students, success is a general category, and they are happy whenever they are successful, regardless of the subject. As with previous responses, a minority do consider fine art to occupy a position of importance equal to that of other subjects. Some may be demotivated for art or find grades to be just an external motivation factor. The opinion of parents could also play a key role if they differentiate between subjects and show the students that they are not as happy about a good grade in fine art as for one in other subjects.
15.4 disagree with the sixteenth statement that fine arts was an important subject for personality and creativity development, and the assessment confirms this, 25.3 partially agree and 59.3 percent agree. Most of the students agree that fine art played a role in their personal development. This means that the most important objectives of the subject during the process of elementary school were fulfilled. Students explained in their responses that it was pleasing to work with their hands, that everyone had a different result that they did not have to memorise definitions or formulas, that they could work on their own and be creative. Assessment, on the other hand, does not necessarily fulfil the expectations of all students at an age (13 and 14 years old) when many do not have a completely positive vision of artistic expression, owing to natural personal psychological development.

Conclusion

Many students still believe in the success of talent, which they interpret in their own way. An interesting observation concerns the art teacher who only gives good grades and underestimates the process of assessment and evaluation. Assessment obviously causes students excitement because they never know what the results will be. When all students receive good grades, they also feel underestimated.
Students need clear assessment criteria and clear evaluation. Therefore, it is necessary for teachers to establish these, verbalizes them, and ensure that all students understand the criteria established. Verbalizing artistic language is sometimes difficult because it must be precise; we are never sure how the words are understood. Formative assessment should be an integral strategy that could benefit the learning process and give confidence to teachers and students alike.

Teachers should not make comparisons between students. The notion of what is good and what is not necessarily implies comparisons when evaluating in this way. It is true that it is difficult to measure art experiences solely by scales that use verbal categories and standardize the student's image. Given what has been explained about the relationship between assessment and learning style, this might be questionable. Therefore, there may also be an impression of non-objectivity in assessment. Activities in art education or for artistic creation aim at the exact opposite, that is, at expressing the uniqueness of each person in an artistic way.

Therefore, it is necessary, among other things, to weigh the importance of the pedagogical and educational components of the learning and teaching process, to understand the characteristics of the creative process in individual students, to allow the necessary flexibility in understanding the evaluation criteria in assessment, and to constantly refresh the ability to sensitively "read" students' art products.

The answers also reflect the importance of support from parents who not make distinctions and comparisons between this subject and the "important subjects." Parents should provide moral support for their children in all school matters.

The importance of the subject within the philosophy of the school is also important. If students feel that the subject is neglected or has a status different from that of other subjects, they will not be motivated, will lose interest, and even gifted students may feel underappreciated. School attitudes are factors that affect academic achievement.

Schools are regarded as places where only educational activities are carried out, but they are more than this. Both academic and non-academic information is imparted to students (Şeker, 2020). School is important to children's overall life satisfaction. School-related social support also affects students' life satisfaction (Danielsen et al., 2009). School should be a place where everyone can develop in different areas of knowledge, and where self-confidence and creativity are encouraged, regardless of students' areas of interest.

Perhaps it is time to think about more appropriate approaches to assessing the visual arts, taking into account the specifics of the subject and of each student at distinct stages of study.

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IMPLEMENTATION OF A CONTEXTUAL TEACHING APPROACH IN PRIMARY SCHOOL EDUCATION

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Contextual teaching and learning approach, constructivist teaching approach, problem-based and project-based teaching, active forms of work in the classroom, learning outcomes.

Abstract/Izvleček

Theoretical discussions and results of empirical research on the contextual approach to teaching and learning point to its effectiveness in realising numerous learning outcomes. The theoretical part of the paper presents the theoretical foundations of the contextual teaching and learning approach, with a focus on constructivist learning theory. The empirical part of the paper presents the results of a study on the implementation of the contextual teaching and learning approach in primary school education from the teachers` perspective. The results indicate that teachers apply the principles of the contextual teaching and learning approach relatively rarely in the teaching process.

Ključne besede:
Kontekstualni pristop k poučevanju in učenju, konstruktivistični pristop k poučevanju, problemsko in projektno poučevanje, aktivne oblike dela v razredu, učni rezultati.

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Izvajanje kontekstualnega pristopa poučevanja v osnovnošolskem izobraževanju

Teoretične razprave in rezultati empiričnih raziskav kontekstualnega pristopa k poučevanju in učenju kažejo na njegovo učinkovitost pri uresničevanju številnih učnih rezultatov. V teoretičnem delu prispevka so predstavljene teoretične osnove pristopa kontekstualnega poučevanja in učenja s poudarkom na konstruktivistični teoriji učenja. V empiričnem delu prispevka so predstavljeni rezultati študije o uveljavljanju pristopa kontekstualnega poučevanja in učenja v osnovnošolskem izobraževanju z vidika učiteljev. Rezultati kažejo, da učitelji v procesu poučevanja relativno redko uporabljajo načela kontekstualnega pristopa poučevanja in učenja.

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Introduction

Different attitudes towards learning processes affect the teacher's approach to the selection and preparation of the teaching content, the choice of teaching methods and approaches, and the organisation of the teaching process. Based on an objectivist-technological understanding of learning and teaching, the traditional teaching approach sees the student as a passive recipient of knowledge and the teacher as a source of knowledge in the technological process. In contrast, the subjectivist-interactionist understanding of learning is viewed through a constructivist approach, which is based on the understanding that learning takes place in the process of reconstructing experiences and constructing knowledge through interaction with the environment. Accordingly, the teaching process is understood as an activity that links learning content with real-life contexts with the active participation of students and teachers through various forms of active collaborative learning. A contextual teaching approach makes it possible to establish a link between the teaching content and its application. Research conducted on the contextual teaching approach has generally focused on examining the impact on learning outcomes and student motivation to learn. The analysis of the literature shows that most of the research focuses on the field of natural sciences and mathematics and only partially on the social sciences and humanities. In the Republic of Croatia, similar research on the contextual teaching approach was conducted by Purković (2016) on the application of contextual learning and teaching in the subject of technical culture, by Kovačević et al. (2022) on the way primary school teachers were introduced to the contextual teaching approach, and by Kovačević and Barbir (2022) on the attitudes of early childhood education and teacher education students at the Faculty of Humanities and Social Sciences in Split towards the representation of the contextual teaching approach in higher education. Overall, there is insufficient research on this teaching approach in different subjects. Therefore, a study was conducted on the representation of the contextual teaching approach in the teaching process from the perspective of primary school teachers.

Theoretical framework for the contextual teaching approach

Although most authors affirm the usefulness of the contextual teaching approach, there is still no consensus on its definition. Rather, this teaching approach is conceived as a theory of teaching and professional development (Verbitski, 1987), as a strategy used by students to construct knowledge (Brown, 1998, Crawford, 2001), or as a concept used by teachers to link the teaching content to a range of real-world contexts (Berns and Erickson, 2001). The contextual teaching approach requires students to engage fully in the learning process by working together in a creative and enjoyable atmosphere, using contexts that are as authentic as possible (Komara, 2013; Krisnawati and Swarsih, 2004). It is a teaching approach based on tasks and activities that are relevant to students' everyday lives and implies an inquiry- and problem-based approach to the teaching content, while applying and linking new knowledge to students' previous experiences and new situations (Barbir, 2024). The methodological framework of the contextual teaching approach promotes the development of critical thinking in students (Brown, 1998) as well as authentic learning related to the social and cultural context of the student's environment, assessed on the basis of authentic assessment (Johnson, 2002). The emphasis is on understanding the importance of the teaching content as a whole and not just the content of a single subject, which emphasises a multidisciplinary approach to linking teaching content through multiple contexts (Barbir, 2024). According to Šulentić Begić and Vodopić (2023), "schools should prioritise interdisciplinary learning in the context of correlational, project-based or thematically integrated teaching, which is in many areas more effective than traditional and conventional teaching methods. With this type of teaching, students acquire knowledge that is applicable to different real-life situations and lasts longer than knowledge acquired through traditional teaching methods" (p. 260). It is therefore a holistic approach to learning that directly encourages students to take responsibility for their own learning and construct knowledge that is applicable to real-life problems. Regardless of its basic definition (approach, strategy, and concept), the contextual teaching approach therefore emphasises the importance of using inquiry-, problem- and project-based activities in the implementation of the teaching process.

"All of this is based on the assumption that students become deeply engaged in the learning process when teachers encourage them to develop their own strategies for solving cognitively challenging tasks and building their own understanding of concepts" (Pejić Papak et al. 2021. p. 502). The contextual teaching approach primarily emphasises learning over teaching, affirms self-regulated learning and reduces the dominance of the teacher in the teaching process, based on the principles of constructivist learning theory (Bentley et al., 2000). Accordingly, it requires teachers to organise teaching content appropriately to make scientific, educational, and social contexts as accessible and simple as possible for students. It is the teacher's ability to design the teaching content according to the requirements of the contextual teaching approach that constitutes him/her as a constructivist designer of the teaching process, who assumes a transformative role in the interaction with the student in order to change the student and the environment through learning and teaching (Mušanović, 2001). The contextual approach to learning and teaching is characterised by the fact that it understands learning as a process of knowledge construction that takes place in interaction with others (Barbir, 2024). The fundamental goal of the contextual approach to teaching is the construction of new knowledge that results from active, collaborative learning through research and problem solving using existing knowledge and experience. To achieve this in the teaching process, teachers need to shift the focus of their activities from content and assessment to the student and their understanding (Crawford, 2001), as research findings have shown that traditional teaching approaches to learning and teaching have not met the educational goals defined for the 21st century (National Commission on Mathematics and Science, 2000). In addition, the value of the contextual approach to teaching has been confirmed in the Cone of Experience Theory (Dale, 1969), based on the ideas of John Dewey, which integrates three types of learning: Learning by Abstraction, Learning by Doing, and Learning by Observation. According to this theory, learning is understood as a process of linking needs, experiences and applications of knowledge and skills. The role of the teacher is to facilitate experiential learning and to help the student link existing knowledge and experiences to new content. "The most fundamental factor in ensuring the longevity of what is learnt is the ability to transfer it to the real world" (Özelçi, Y. S., 2023, p. 254.)

Methodological framework

The subject of the research is the implementation of the contextual teaching approach from the perspective of primary school teachers. The research aims to investigate the presentation of the contextual approach in the classroom based on the research question:
To what extent do teachers believe that the contextual approach is represented in practice?

The study, in which 421 primary school teachers from all disciplines participated, was conducted and completed in 2022/23 using a questionnaire that collected data on the socio-demographic characteristics of the respondents and the scale of frequency of implementation of the contextual teaching approach by primary school teachers. The scale is based on the definition of the contextual teaching approach as a constructivist approach to learning and teaching that links teaching content to real-life contexts and enables students to more readily understand the learning content (Johnson, 2002). The scale consists of statements considered most appropriate to test the implementation of the contextual teaching approach. The items on the scale are listed in Tables 1, 2 and 3.
The scale ranged from 1 to 7: 1 – never; 2 – once or twice during the school year; 3 – once or twice during the semester; 4 – several times during the semester; 5 – once a week; 6 – several times a week, and 7 – daily.

Research results

Analysing the results at the scale point level (Table 1) shows that one-third of teachers teach in a way that allows students to apply the lesson content and link it to real-life contexts, while 3% never do so. About 72% of teachers use various real-life examples when explaining the teaching content, and about 70% of them link the teaching content to real-life contexts, while 1% never do so. About 51% of teachers hold lessons several times a week in which they learn about the real world at school, and about 46% do so somewhat less frequently during the school year, while 3% of them never conduct such activities.

These results suggest that teachers endeavour to contextualise the lesson content as often as possible and point out its applicability to real life so that students can easily understand what they are learning (Caine and Caine, 1993). In addition to linking the teaching content to real life, it is also necessary to link it to other previously learned teaching content, which is reflected in the building of knowledge on previous experiences (Lent et al., 2001; Fasheh, 1990). The analysis of the responses revealed that two-thirds of teachers (69%) frequently link current content to previously learned content, while about 31% relatively rarely do this, and only about 2% never conduct lessons in this way. A total of 48% of teachers link content from different subjects relatively frequently in lessons, 35% somewhat less frequently, while about 15% do so daily and 2% never in lessons.

Table 1. Implementation of teaching content

Statements		1	2	3	4	5	6	7	*M, SD*
10. The teaching content is linked to real life.	f	3	39	86	134	51	51	57	4.36
	%	0.7	9.3	20.4	31.8	12.1	12.1	13.5	1.53
15. I have encouraged students to link acquired knowledge to other content.	f	9	30	95	118	47	55	67	4.42
	%	2.1	7.1	22.6	28.0	11.2	13.1	15.9	1.61
16. Students can apply acquired knowledge in extracurricular contexts.	f	11	31	86	131	33	57	72	4.43
	%	2.6	7.4	20.4	31.1	7.8	13.5	17.1	1.65
11. I have organised lessons based on the students' real-life experiences.	f	14	38	85	108	48	58	70	4.41
	%	3.3	9.0	20.2	25.7	11.4	13.8	16.6	1.69
24. Students have linked knowledge to real life.	f	12	39	85	131	29	61	64	4.34
	%	2.9	9.3	20.2	31.1	6.9	14.5	15.2	1.65
18. I have shown the students how to apply acquired knowledge to solve a real-life problem.	f	10	36	94	124	53	42	62	4.30
	%	2.4	8.6	22.3	29.5	12.6	10.0	14.7	1.60
19. To explain the teaching content, I have used examples from various real-life situations.	f	7	27	83	116	32	65	91	4.66
	%	1.7	6.4	19.7	27.6	7.6	15.4	21.6	1.68

Since only 15% of teachers teach daily, it is not possible to speak of a practice of interdisciplinary learning that promotes the active acquisition of knowledge, the development of linking strategies and thinking (Sicherl-Kafol, 2002; Marentič-Požarnik, 2008).

In addition, it was found that about 70% of teachers teach in such a way that students can apply the content they have learnt in contexts outside of school. About 20% of them do this somewhat less frequently, 7% rarely, and 3% never carry out such activities in class.

Table 2. Recognition of content in varied contexts

Statements		1	2	3	4	5	6	7	*M, SD*
17. Analogies have been used to explain the teaching content.	f	16	39	84	124	47	63	48	4.25
	%	3.8	9.3	20.0	29.5	11.2	15.0	11.4	1.61
12. Students have been learning that science/art is present in their lives at school and outside of school.	f	12	41	93	101	41	59	74	4.40
	%	2.9	9.7	22.1	24.0	9.7	14.0	17.6	1.72
13. Students have been learning the teaching content which helps them better understand the world outside of school.	f	12	37	91	123	41	41	76	4.36
	%	2.9	8.8	21.6	29.2	9.7	9.7	18.1	1.68
20. Students have been encouraged to apply knowledge in various situations.	f	11	27	101	112	35	49	86	4.48
	%	2.6	6.4	24.0	26.6	8.3	11.6	20.4	1.70
21. Students have been learning to apply the teaching content in various real-life contexts.	f	11	39	104	114	33	50	70	4.30
	%	2.6	9.3	24.7	27.1	7.8	11.9	16.6	1.68
22. Students have been learning to link different teaching content from separate subjects.	f	8	47	101	122	35	47	61	4.22
	%	1.9	11.2	24.0	29.0	8.3	11.2	14.5	1.63
9. Students have been encouraged to recognise a certain problem/topic in multiple real-life situations.	f	9	54	88	127	36	53	54	4.19
	%	2.1	12.8	20.9	30.2	8.6	12.6	12.8	1.62
23. I have delivered lessons by linking the new teaching content to previously learned content in class.	f	8	42	82	109	33	55	92	4.54
	%	1.9	10.0	19.5	25.9	7.8	13.1	21.9	1.74
14. Students have been learning about the real world at school.	f	12	37	90	119	37	57	69	4.38
	%	2.9	8.8	21.4	28.3	8.8	13.5	16.4	1.67

More frequent application of acquired knowledge in out-of-school contexts allows students to engage actively in solving and recognising problematic situations and thus learn the fundamental significance of what they are learning (Crawford, 2001). Accordingly, it was found (Table 3) that about 64% of teachers relatively frequently insist on students` ability to recognise specific problems in real-life contexts, while about 34% do so somewhat less frequently, and 2% never do so.

More frequent encouragement to recognise problems in a range of real-life contexts has a positive effect on the development of student interest in and motivation for the lesson content (Gerlai, 1998).

Table 3. Active forms of teaching

Statements		1	2	3	4	5	6	7	*M, SD*
27. In class, students have been learning that science/art cannot provide answers to all questions and problems.	f	31	71	108	126	31	30	24	3.57
	%	7.4	16.9	25.7	29.9	7.4	7.1	5.7	1.51
28. The students have been learning how the scientific interpretation of problems has changed over time.	f	18	59	122	117	37	36	32	3.79
	%	4.3	14.0	29.0	27.8	8.8	8.5	7.6	1.52
25. Through inquiry, students have provided answers to the teacher's questions.	f	21	67	103	126	30	40	34	3.79
	%	5.0	15.9	24.5	29.9	7.1	9.5	8.1	1.57
26. Students have found answers to questions through inquiry.	f	15	69	122	128	37	31	19	3.65
	%	3.6	16.4	29.0	30.4	8.8	7.4	4.5	1.39
29. Students have been learning to distinguish between modern and traditional understandings of problems.	f	25	50	112	136	25	43	30	3.80
	%	5.9	11.9	26.6	32.3	5.9	10.2	7.1	1.53
30. Students have been learning that the most important thing in understanding certain problems is scientific questioning and searching for answers.	f	17	62	109	125	31	47	30	3.84
	%	4.0	14.7	25.9	29.7	7.4	11.2	7.1	1.53
31. Students have been learning that the same scientific problems are interpreted differently in different cultures and societies.	f	30	56	97	144	30	38	26	3.73
	%	7.1	13.3	23.0	34.2	7.1	9.0	6.2	1.52

It is important not only to encourage students to recognise diverse situations in real life, but also to encourage them to apply the acquired knowledge in multiple real-life contexts. The results of this study show that the majority of teachers – about 63% – do this relatively frequently during lessons, 17% do it daily, while about 34% do it somewhat less frequently, and 3% never do it. In addition, it was found that about 66% of teachers point out the potential for applying the teaching content to solve real-life problems relatively often, 15% of them daily, while 34% of teachers do this relatively rarely, 3% of them never.

Applying acquired knowledge to real-life contexts and identifying problem-based situations can create all the conditions for the development of a rich learning experience that sets the stage for emotional and cognitive engagement in the learning process, which has a direct impact on the deconstruction of existing knowledge and the construction of new knowledge. This process has a direct impact on student perceptions of the multidimensional relationships and connections among the teaching content, their understanding, and the increase in motivation to learn (Watkins et al, 2007; Jelavić, 2008; Cindrić et al, 2010; De Putter Smits, 2012).

The results of this study (Table 4) show that the majority of teachers, about 68%, frequently draw on students' previous out-of-school experiences, of which almost 17% do so daily, while about 32% do so somewhat less frequently, and 3% never do so. In addition, it was found that about 55% of teachers encourage students to answer the teachers' questions through inquiry, and about the same percentage of teachers encourage students to inquire in class, of which only 5% of teachers do so daily. However, this finding suggests that inquiry is not being used sufficiently in the classroom, even though previous studies (Ross and Call-Cummings, 2020; Björklund and Selander, 2022) have shown that the inquiry approach to teaching has a positive impact on learning performance and outcomes. In terms of involving students in the implementation and planning of lesson content and encouraging students to be independent and take responsibility for their own learning, the results show that about 31% of teachers do this relatively frequently, of which only 3% do it daily, while 69% of them practise this teaching approach somewhat less frequently, and 6% never do it. It was also found that 34% of teachers frequently give students the opportunity to participate in the preparation of personal projects in class, of which only 3% do this daily and 4% never.

Only about 35% of teachers tend to let students decide for themselves how to complete tasks, 3% of them daily, while about 5% never do so. The results indicate an underrepresentation of inclusion activities and the development of autonomy in the planning and delivery of lessons. Indeed, research has found that there is a relationship between student independence and self-regulation and intrinsic motivation to self-learn (Stiller and Ryan, 1992; Benware and Deci, 1984), the quality of learning outcomes (Zimmerman, 1986, 2002) and the development of self-regulation in learning (Perry and Hutchinson, 2006).

Table 4. Learning independence and self-regulation

Statements		1	2	3	4	5	6	7	*M, SD*
33. Students have had the opportunity to choose the topics of project-based activities.	f	24	74	114	129	37	29	14	3.53
	%	5.7	17.6	27.1	30.6	8.8	6.9	3.3	1.39
34. Students have had the opportunity to suggest (choose) the lesson content.	f	40	81	101	124	35	27	13	3.39
	%	9.5	19.2	24.0	29.5	8.3	6.4	3.1	1.46
35. Students have been involved in the planning of teaching activities.	f	27	71	117	108	41	37	20	3.61
	%	6.4	16.9	27.8	25.7	9.7	8.8	4.8	1.50
36. Students have participated in the preparation of minor personal projects.	f	16	77	123	143	30	21	11	3.48
	%	3.8	18.3	29.2	34.0	7.1	5.0	2.6	1.27
32. In my class, students have independently decided on the ways of carrying out the tasks.	f	22	59	106	148	38	37	11	3.66
	%	5.2	14.0	25.2	35.2	9.0	8.8	2.6	1.36

Accordingly, teachers who implement such activities less frequently in the classroom have a direct impact on students' lack of creativity, motivation, and initiative (Ryan and Deci, 2000). The results of this research point to the application of prevailing traditional teaching approaches (Purković, 2016; Barendsen and Henze, 2017; Gazibara, 2018). Similar to the results of related studies (Bošnjak, 2009; Jurčić, 2012; Peko and Varga, 2014), they confirm the relative rarity of opportunities for student involvement in the process of lesson planning and delivery.

Overall, the distribution of results according to scale points (Table 3) shows that about two-thirds of teachers do try to link the teaching content to real-life situations and encourage students to apply the knowledge they have acquired to a range of real-life contexts.

The affirmation of teaching approaches that promote collaborative and experiential learning, i.e. the connection between students' experiences and teaching content, has a direct impact on the development of metacognition, creativity and innovation; therefore, such activities should be carried out more frequently in the teaching process (Terhart, 2003; Cindrić et al., 2010; Matijević and Radovanović, 2011).

These results are in line with a similar study (Matijević, 2014), which found that only 25% of the students surveyed participated in some of the group and project work forms. Vrkić Smokić et al. (2022) found that the percentage of teachers trained to promote critical thinking among students was extremely low.

Looking at the responses by scale point, it can be concluded that almost two-thirds of the teachers link the teaching content slightly more often to students' previous experiences and knowledge and that students have the opportunity to link and apply the newly acquired knowledge to new situations and multiple real-life contexts. It is the linking of course content to other contexts that enables a full and meaningful understanding of the subject matter (Shields, 1998). The results indicate that the linking of teaching content with real contexts is achieved more frequently in the teaching process compared to other dimensions investigated. These results are partly consistent with the findings of the study by Karamatić Brčić et al. (2022), which indicates that teaching activities in secondary schools in the Republic of Croatia are planned several times a week based on students' prior knowledge, experiences and interests, and that teachers believe that they often enrich the teaching content with examples from students' lives and their direct experience. A similar result was provided by a survey conducted in 2018 (Dekanić et al., 2020), which showed that, 79% of Croatian teachers most often use real-life problems to illustrate the usefulness of new knowledge, when compared to their use of all teaching methods.

Furthermore, the results of this study indicate that encouraging students to engage in independent research and project-based work is underrepresented in the classroom. This result is consistent with the findings of Markić (2014), which indicate that the direct form of teaching is the most usual form of work, as opposed to working in pairs or groups. The result of this study can be explained by the teachers' need to control the effectiveness of the teaching process and by a personal view of the learning processes in which the traditional (frontal) aspect of the teaching approach still prevails.

This statement can be supported by the results of this study, which showed that teachers do not sufficiently promote student independence, their participation in the planning and implementation of the teaching process, the selection of teaching content, or control over their own learning process. Comparable results were found in other studies (Jurčić, 2012; Peko and Varga, 2014; Anđić and Vidas, 2021; Rašić, 2022; Gumartifa et al, 2023; Adl-Amini et al, 2024), which pointed to the dominant representation of the traditional teaching approach.

All these results emphasise the need to promote student autonomy, to involve them in the planning of the teaching process and the selection of teaching content, but also to adapt the curriculum and didactic materials that ensure the linking of teaching content with real-life contexts.

Conclusion

The results of this study indicate that the current teaching process is still dominated by the traditional teaching approach and the frontal form of teaching and learning. At the same time, they point to the need to promote student involvement in the learning process and the development of self-regulated learning through various active forms of teaching such as collaborative work, problem and project-based teaching, discussion and debate, which contribute to the development of critical thinking, self-confidence and motivation. The results of this research not only provide insights into classroom practice, but also give cause for reflection on the quality of teacher education programmes, professional development programmes and the delivery of subject curricula. Teachers can use these findings to better understand the contextual teaching approach and improve their own teaching practice.

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