

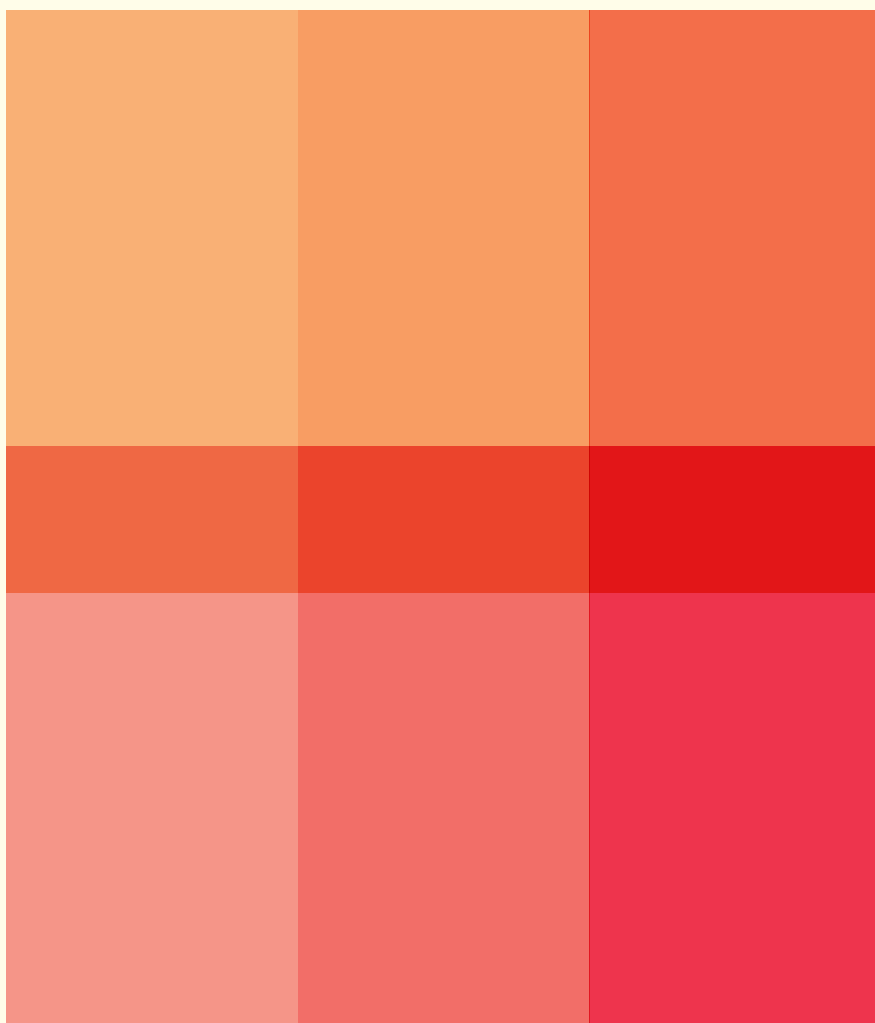
# C · E · P · S *Journal*

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Center for Educational Policy Studies Journal  
*Revija Centra za študij edukacijskih strategij*

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# C · E · P · S *Journal*

Center for Educational Policy Studies Journal

*Revija Centra za študij edukacijskih strategij*

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

## **Aims & Scope**

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

## **About the Publisher**

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

In 2001, the Centre for Educational Policy Studies (CEPS; see <http://ceps.pef.uni-lj.si>) was established within the Faculty of Education to build upon experience acquired in the broad reform of the

national educational system during the period of social transition in the 1990s, to upgrade expertise and to strengthen international cooperation. CEPS has established a number of fruitful contacts, both in the region – particularly with similar institutions in the countries of the Western Balkans – and with interested partners in EU member states and worldwide.



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

## **Cilji in namen**

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

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

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

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## Editorial

The second issue of volume ten of the CEPS Journal presents seven articles, covering different topics from the field of education.

The first article, entitled *Teachers' Opinions about the Effect of Chemistry Demonstrations on Students' Interest and Chemistry Knowledge*, by Luka Vinko, Seamus Delaney, and Iztok Devetak, is from the area of chemistry education. Since chemistry is an experimental discipline that also uses experimentation as a research method, laboratory work and other practical work are essential in chemistry lessons. The quantitative research approach was used to gather data on 81 primary and secondary school teachers from different regions of Slovenia. Teachers completed an online questionnaire on their perceptions of the impact of chemistry demonstrations on students' interest and performance in chemistry classes and on the quality of students' chemistry knowledge. The study results revealed that the participating teachers consider the chemistry demonstration to have a positive effect on the motivation and performance of the students in chemistry and on the quality of the students' chemistry knowledge irrespective of the years of teaching experience and the frequency of performing chemistry demonstrations.

The second article, by Tatik Retno Murniasih, Cholis Sa'dijah, Makbul Muksar, and Susiswo, with the title *Fraction Sense: An Analysis of Preservice Mathematics Teachers' Cognitive Obstacles* is from the area of mathematics and education. In the article, the authors analyse pre-service mathematics teacher's cognitive obstacles and present specific obstacles with fraction sense tests. The authors focus on two types of obstacles: epistemological and didactic ones. A qualitative descriptive approach of 20 pre-service mathematics teachers was carried out in order to analyse the research problem. The findings showed that five pre-service teachers had overlapping obstacles, ranging from language representation and tendency to generalise; tendency to generalise and less meaningful learning; language representation, tendency to rely on intuition and trial and error strategy; language representation and trial and error; and to language representation and tendency to rely on intuition.

The third article is by Robert Potočnik, entitled *Heritage Preservation Education: Teachers' Preconceptions and Teachers Implementation in Visual Arts Classes*. Altogether, 125 teachers of the school subject visual arts in Slovenia were included in the study with the aim of identifying the teachers' preconceptions about the preservation of architecture in the Slovenian countryside and the implementation of heritage preservation concepts in visual arts teaching. These teachers play a significant role in planning and implementing visual arts

tasks with preservation concepts. The study revealed the teachers' preconceptions regarding some problems in the Slovenian countryside, as well as sufficient awareness of the importance of the implementation in heritage preservation concepts in visual arts activities, according to contemporary professional guidelines. Also, teachers' preconceptions reveal a lack of some basic knowledge of preservation concepts. The author concludes that that greater emphasis should be placed on developing training programmes for teachers and more heritage preservation education contents should be incorporated into pre- and in-service teachers' education.

The author Sintayehu Kassaye Alemu in his article entitled *Transnational Mobility of Academics: Some Academic Impacts* defines transnational academic mobility as academic travel across borders of states and as one of the aspects of the new internationalisation of higher education. It is presented in terms of the roles of academics in teaching-learning experiences as well as knowledge production and transfer. The article deals with the academic impacts of the short- and long-term transnational mobility of academics in relation to institutional affiliation and academic status and profile. It also shows that academics have gained benefits with transnational mobility, but sometimes they also face challenges.

The article entitled *Between Retributive and Restorative Compulsory School Teachers' Discipline Activities* by Katja Jeznik, Robi Kroflič, and Metka Kuhar addresses the concept of moral and character education which needed to be defined by each of the compulsory schools in Slovenia since 2009 under the formal framework of the Primary School Act. The study presents the views of teachers regarding disciplinary measures through the prism of the paradigmatic divide of two main punishment theories: the more traditional retributive responses to undesired conduct, and the more recent restorative approach. The authors conclude that schools need a clearer disciplinary framework with the systematic acquisition of knowledge and practical experience in the field of educational and discipline strategies and that teachers must continuously reflect on their disciplinary practices.

The next article, written by Mehmet Semih Summak and Mahmut Kalman, is entitled *A Q-Methodological Analysis of School Principals' Decision-Making Strategies during Change Process at Schools*. This study aimed to explore the decision-making strategies that school principals employ while dealing with the challenges faced during the change process at schools by using Q methodology, a qualitative-dominant mixed methods research design. The findings revealed that school principals shared similar views and had a similar profile in terms of decision-making and related strategies. It is shown that the dominant



beliefs driving principal's decision-making strategies seemed to incorporate a comprehensive evaluation of the current situation, ethical concerns and organisational values, assessment of technical details.

The last article is entitled *Structural Reasons for School Violence and Education Strategies*, and it is written by Janez Krek. For the purposes of the research, the author developed a concept of structural reasons in which it was theoretically assumed to appear as typical structural reasons for violence in schools, and empirical research was used in order to determine how primary school teachers recognise violent behaviour and how they execute moral education in the areas of the specific structural reasons for violence. Although the majority of teachers have appropriate pedagogical knowledge to recognise the specific structural reasons for violence and are able to identify the appropriate moral education or support strategy to address the identified violent or disruptive behaviour, the results showed that teachers only begin to engage with the factors or reasons behind violent incidents in individual cases, and not systematically. The author suggests that schools introduce the systematic differentiation of structural reasons for violence and should incorporate this approach in the schools' moral education plan and the work of teachers.

This issue is rounded off with two book reviews. The first review, of the book entitled *Teaching Chemistry in Higher Education* and written by Iztok Devetak, represents a compendium of different chapters authored by respected higher education chemistry teachers and chemistry education researchers from the United Kingdom, Ireland, and Australia. The book is dedicated to Prof. Tina Overton, one of the most prominent chemistry education researchers.

The second book review is written by Metka Knez. It is a review of the Slovene translation of the book entitled *How Institutions Think* (Kako mislijo institucije) by Mary Douglas, the social anthropologist who, when dealing with institutions, relies on various authors and theories in other disciplines: biology, medicine, sociology, philosophy, among others.

JANEZ VOGRINC



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## Teachers' Opinions about the Effect of Chemistry Demonstrations on Students' Interest and Chemistry Knowledge

LUKA VINKO\*<sup>1</sup>, SEAMUS DELANEY<sup>2</sup> AND IZTOK DEVETAK<sup>3</sup>

Chemistry is an experimental discipline that uses experimentation as one of its most important research methods. Laboratory work and other practical work are therefore also essential in chemistry lessons. Chemistry demonstrations are used by teachers as an educational approach that can increase students' interest in chemistry and motivate them to learn chemical concepts with understanding. However, if the students are actively involved in the chemistry demonstration, it can be just as effective as or even more effective than students' learning through experiments. The purpose of this research is to examine teachers' opinions about the impact of chemistry demonstrations on students' interest and chemistry knowledge. Based on a quantitative research approach, 81 primary and secondary school teachers from different regions of Slovenia participated in this study. Participating teachers completed an online questionnaire on their perceptions of the impact of chemistry demonstrations on students' interest and performance in chemistry classes and on the quality of students' knowledge of chemistry. The results show that regardless of the years of teaching experience and the frequency of performing chemistry demonstrations, the participating teachers consider such demonstrations to have a positive effect on the motivation and performance of the students in chemistry and on the quality of the students' knowledge of chemistry.

**Keywords:** chemical concepts understanding, chemistry demonstrations, chemistry teaching, students' interest

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2 Faculty of Arts and Education, Deakin University, Australia.  
3 Faculty of Education, University of Ljubljana, Slovenia.

## Mnenje učiteljev o učinkih demonstracijskih eksperimentov na interes učencev in njihovo kemijsko znanje

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LUKA VINKO, SEAMUS DELANEY IN IZTOK DEVETAK

☞ Kemija je eksperimentalna veda, ki uporablja eksperiment kot eno glavnih orodij preučevanja. Laboratorijsko in drugo praktično delo sta tako bistvena tudi pri kemijskem izobraževanju. Demonstracijske eksperimente učitelji uporabljajo kot pedagoški pristop, ki lahko povečuje učenčev interes za kemijo pa tudi motivira učence za učenje z razumevanjem. Če so učenci v demonstracijo aktivno vključeni, pa so lahko demonstracijski eksperimenti enako učinkoviti oziroma še učinkovitejši kot samostojno eksperimentiranje učencev. Namen raziskave je bil preučiti mnenja učiteljev o učinkih demonstracijskih eksperimentov na učenčev interes in uspešnost pri pouku kemije ter na kakovost učenčevega kemijskega znanja. V raziskavi, ki je temeljila na kvantitativnem raziskovalnem pristopu, je sodelovalo 81 osnovnošolskih in srednješolskih učiteljev iz različnih statističnih regij Slovenije. Učitelji so izpolnili spletni vprašalnik, ki se je navezoval na njihovo mnenje o učinkih izvajanja demonstracijskih eksperimentov na interes učencev in uspešnost pri pouku kemije ter na kakovost učenčevega kemijskega znanja. Ugotovljeno je bilo, da učitelji ne glede na delovno dobo in pogostost izvajanja demonstracijskih eksperimentov po večini menijo, da demonstracijski eksperimenti pozitivno vplivajo na interes in uspešnost učencev pri pouku kemije ter na kakovost učenčevega kemijskega znanja.

**Ključne besede:** razumevanje kemijskih pojmov, demonstracijski eksperimenti, poučevanje kemije, interes učencev

## Introduction

The experiment is one of the most important research methods in chemistry. Laboratory work and other practical work are, therefore, also essential in chemistry lessons (Tsaparlis, 2009), which can also be observed in primary and secondary school curricula, which are mainly based on activities at the macroscopic level, indicating that students need to understand chemistry as an experimental discipline (Wissiak Grm & Glažar, 2002). However, the macroscopic level of chemistry is an essential component for students to understand the submicroscopic (particulate) and symbolic levels of chemical concepts (Pavlin, Glažar, Slapničar, & Devetak, 2019). Practical work includes activities in which students handle substances and materials in order to carry out a certain chemical reaction or observe chemistry demonstrations (Hodson, 1990). The basic goal of these activities is to learn new chemical concepts. Chemistry demonstrations are usually conducted by teachers or experts who can provide the best quality demonstration for students. The latter should participate as active learners and acquire knowledge experientially. The advantage of chemistry demonstrations is that teachers have greater control over the overall work arrangement of the experiment and can focus students' attention on the most important parts of the experiment (Johnston & Al-Shuaili, 2001).

This paper aims to determine the opinions of Slovenian chemistry teachers on how the use of chemistry demonstrations in chemistry lessons influences the students' interest in chemistry and their performance. The term 'chemistry demonstrations' is used for the purposes of this paper when the teacher's experimental work performed in front of the whole class is discussed.

### *Practical work*

When we speak of practical work, we usually speak of activities where students observe or work with objects and materials (individually in pairs or in groups) or observe teacher demonstrations (Hofstein, 2015). Practical work includes not only work in a real chemistry laboratory, but also any activity involving tangible objects that enable students to handle and interact with substances, such as dissolving sodium chloride in water. By stimulating interest and enjoyment, practical work motivates students, teaches them laboratory skills, improves their learning of science, gives them insight into scientific methods and develops scientific reasoning, such as objectivity and open-mindedness (Hodson, 1990). Practical or experimental work emphasises students' understanding of the nature of science, for which it is not enough to learn the facts by rote, but it is also a dynamic process of finding different ways to explain natural phenomena (Hodson, 1993).

It can be said that experiments and practical work play a central role in science teaching; in most cases, both teachers and students have a very positive attitude towards practical work, especially because they 'like to experiment'. From the perspective of science teaching, experiments can contribute to various aspects of science learning, but they are usually used in everyday science teaching for a limited number of goals (Haagen-Schützenhöfer & Joham, 2018).

### *Chemistry demonstrations*

Teachers use chemistry demonstrations as a pedagogical approach that not only increases students' interest in chemistry but also motivates them to learn with understanding (Bodner, 2001; Beall, 1996; Buncick, Betts, & Horgan, 2001; Zimrot & Ashkenazi, 2007). Despite the students' opinion that chemistry demonstrations are not as effective as active individual hands-on experimental work, we should not ignore the fact that students who perform experiments individually often focus on unimportant parts of the experiment while neglecting to focus on other more meaningful parts.

The advantage of chemistry demonstrations is that the teacher has more control over the course of the experiment and can thus direct the students' concentration to the important parts of the experiment (Johnstone & Al-Shuaili, 2001). White (1996) found that chemistry demonstrations can be as effective as individual hands-on experimental work if the students are actively involved in the demonstration (they observe, write down the results, complete tasks related to the experiments, etc.). Logar and Ferik Savec (2011) also concluded that chemistry demonstrations are more effective in terms of students' long-term knowledge than students' hands-on experimental work.

When conducting a chemistry demonstration, we have the power to decide whether the experiment will be trivial and fun or whether it will serve to actually show and explain a particular chemical concept (Meyer, Schmidt, Nozawa, & Panee, 2003). The teacher must not only choose the right experiment to explain a particular chemistry concept but must also take into account that it is suitable for students according to their age and previous chemical knowledge and that it is relatively easy and not too expensive to perform (Trowbridge, Bybee, & Powell, 2000).

In choosing the appropriate experiment, one must consider how to carry out the demonstration and show it to the students to make them think about what they have seen, and one should draw appropriate conclusions to learn new concepts (Kelter, 1994). The teacher must perform the experiment at least once before presenting it to the students. In this way, he/she can strengthen his/her skills and at the same time consider how to explain what happens during the demonstration in order to effectively present the desired chemical concept to students (Moore, 2000).

Thorough preparation for the demonstration allows the teacher to devote time to the students and guide the learning process during the demonstration. Teachers have two roles in conducting a demonstration. Not only do they have to carry out a particular experiment, but they also have to take special care that all students clearly observe the course of the experiment. The teacher should also direct their attention and attempt to involve the students in the chemical process to be demonstrated. In this sense, experiments can be both educational and entertaining. By actively participating in the demonstration, students learn much more than usual (Logar & Ferik Savec, 2011; Waldman, Schechinger, & Nowick, 1996).

Chemistry demonstrations bring important experiences with them, which can be a topic of discussion for over-generalised and simple chemical concepts. The design of such demonstrations begins with the evaluation of the students' knowledge and the exploration of specific contexts by the teachers in which he or she places certain chemistry demonstrations. These contexts can then be useful discussion topics for chemistry lessons (Ashkenazi & Weaver, 2007).

In order to involve students more actively in the demonstrations, Chameily-Wiik, Haky, Louda, and Romance (2014) proposed a specific SQER<sub>3</sub> model (survey, question, experiment, recite, reflect, review) that provides guidelines for the development of quality demonstrations. This model consists of several steps: 1) Survey: focuses on key concepts and basic questions that arise during the demonstration; 2) Question: students develop a testable question based on observations and prior knowledge; 3) Experiment: students and teachers develop an experiment to answer the question, make observations and collect data; 4) Reciting: students organise the data and verbalise the results; 5) Reflecting: students explain the results and develop additional questions needed to understand the concepts; 6) Reviewing: teachers and students review the key concepts and apply them to new situations. The SQER<sub>3</sub> model can be easily used for most demonstrations, allowing for the flexible design and execution of chemistry demonstrations.

### *Research problem and research questions*

Based on the results of the national evaluation of chemical knowledge at the end of compulsory education (9th grade, average age of students 14 years), it can be concluded that students have problems in solving tasks involving experimental work. After the literature review, the research problem was defined to be how demonstration experiments affect the students' motivation, their performance in chemistry lessons, and their chemical knowledge. Based on this research problem, four research questions were formed:

1. How do teachers involve their students in conducting chemistry demonstrations?

2. Do chemistry teachers evaluate the impact of chemistry demonstrations on students' performance and interest in learning chemistry significantly differently?
3. Do chemistry teachers with different lengths of teaching experience have significantly different opinions about the impact of chemistry demonstrations on students' knowledge of chemistry?
4. Do chemistry teachers who conduct a varying number of chemistry demonstrations in their classes evaluate the impact of chemistry demonstrations on student performance and interest in chemistry education significantly differently?

## Method

### *Participants*

Teachers of the lower secondary school (students aged 12 to 14) and the upper secondary school (students aged 15 to 18) in service chemistry teachers participated in this research. The teachers were randomly selected from all statistical regions (Figure 1) of Slovenia according to the database provided by the Ministry of Education, Science and Sport. A total of 81 in-service teachers (57 lower secondary elementary and 24 upper secondary school chemistry teachers) were selected for research. They participated voluntarily in this study.



Figure 1: Distribution of participating teachers by Slovenian statistical regions.



Table 1

*The number of teachers in the specific age group.*

Teachers' age in years	<i>n</i>
56 or more	11
46-55	29
36-45	27
26-35	12
25 or less	2
<b>Sum</b>	<b>81</b>

The majority of teachers in the sample were between 36 and 55 years old (69%).

Table 2

*The number of teachers by years of teaching experience.*

Years of teaching experience	<i>n</i>
More than 15	50
11-15	14
6-10	8
2-5	6
Teaching the first year	3
<b>Sum</b>	<b>81</b>

More than 60% of all teachers participating in this study had more than 15 years of practical experience in teaching chemistry in lower and upper secondary schools.

### *Instrument*

The instrument was an online questionnaire co-developed with researchers from Deakin University in Australia as part of an international project: 'Interactive Demonstration Experiments combining macro observations with sub-micro observations - Teacher's explanation and student activity'. The questionnaire included an introductory section on the demographic variables of teachers (e.g., age, experience in teaching chemistry. etc.) and three parts on teachers' approaches to teaching chemistry with chemistry demonstrations: 1) student participation in chemistry demonstrations (1 question), 2) teacher's opinion on how chemistry demonstrations affect student motivation

(4 questions) and () teacher's opinion on how chemistry demonstrations affect student's chemistry knowledge (4 questions). The question from the first content block was an open question type; the other questions were based on the 5-point Likert scale.

### *Research design*

The research was carried out as part of an international project linking three countries and three universities: Deakin University, Australia, Tallinn University, Estonia and the University of Ljubljana, Slovenia. The project was led by researchers from Australia, who also drafted the questionnaire in English. Comments and additions were submitted by the partner institutions, and the final form of the instrument was drawn up on this basis. The questionnaire was then translated into Slovenian and checked by three experts in the field of chemical education, which ensured the validity of the translation. Deakin University Qualtrics project managers provided computer support for the implementation of the Slovenian version of the online questionnaire. For the purposes of this paper, only data from Slovenian chemistry teachers has been used.

The instrument was sent out in two phases by e-mail to all selected teachers, as it was not possible to reach a sufficiently large sample in all national regions in just one phase. Prior to this, all teachers received an electronic note describing the study. After sending a reminder with a link to the online questionnaire to a total of 130 schools, it was completed by 81 teachers. The data were exported from an online database into an Excel and SPSS file. Descriptive and inferential statistics were used to process the data. Because of the non-normal data distribution, non-parametric (Wilcoxon and Kruskal-Wallis) tests were used. The answers to the open questions were analysed and divided into different categories.

## **Results and discussion**

The results are presented with regard to the research questions mentioned above.

The first research question was: 'How do teachers involve their students in conducting chemistry demonstrations?'; for that, the aim was to determine what the students do while the teachers are conducting chemistry demonstrations and also what the teachers expect their students to do during a demonstration; 73 teachers gave one or more answers. The answers were categorised and are presented in a frequency table. The answers, which appeared only once or twice, were left in the same form as they were written by the teachers.

Table 3

*Possibilities for involving students in demonstration experiments.*

<b>Participation of the students in demonstration experiments</b>	<b>f</b>
Students observe the experiment.	61
They comment on and explain the observations.	33
They write down the observations.	22
You write conclusions based on observations / you connect the observations with the theory	18
They predict the course of the experiment.	12
They ask questions.	12
They answer questions.	11
They participate in the execution of the experiment.	10
The completed worksheets.	7
You draw the sketch of the experimental apparatus.	7
You write down the chemical reaction equation.	5
Other.	35

According to the categories, teachers want their students to write down, comment on and/or explain the observations ( $f = 73$ ), followed by the students who observe the chemistry demonstrations ( $f = 61$ ). Twenty-three teachers encourage their students to ask or answer questions about chemistry demonstrations, and 12 teachers want their students to predict the course of experiments before the chemistry demonstration. Ten of them ask their students to take part in the chemistry demonstration. Less than ten teachers involve their students in chemistry demonstrations by having them fill out worksheets, draw a sketch of the experimental apparatus and write down the chemical reaction equation.

Under the category 'other', 35 answers from teachers were categorised according to the frequency of their occurrence. The answers, which appeared twice, were: 'They write down a list of the chemicals used in the demonstration'; 'describe the laboratory equipment'; 'discuss safety precautions'; 'think about what's happening with reactants and products'; 'comment on results'; 'make hypotheses'; 'listen to the teacher's explanation.' The answers that appeared only once were as follows: 'they learn how to handle hazardous substances'; 'they learn chemical techniques'; 'they carry out the experiment themselves'; 'they point out the constants and variables'; 'they highlight key concepts that are captured by a chemical reaction'; 'analyse the execution of the experiment'; 'suggest possible improvements of the experiment'; 'try to make the demonstration experiment appropriate in different subject areas'; 'search for solutions'; 'enhance the experiment with their ideas'; 'participate in planning the chemistry demonstration'; 'plan the

necessary protection'; 'solve tasks related to the experiment'; 'try to transfer the acquired knowledge to new cases'; 'record the experiment with a mobile phone'; 'write down questions'; 'test whether there has been a change in temperature'.

Similar results were found by Price and Brooks (2012): teachers explained that they involve students in experimental activities by instructing them to observe the course of the experiment actively. Some teachers invite students to predict the outcome of the experiment or instruct them to participate in it, while others ask them questions during the experiment that lead them to conclusions. Walton (2002) researched first-year chemistry students and found that a good way to engage his students was to have them write their observations on worksheets and then pass them on to their colleagues to evaluate the written observations and conclusions. It was also found that about 25% of teachers involve their students by telling them to write down their observations and draw conclusions from them. Ashkenazi and Waever (2007) found that students learn best when the teacher asks them to predict the results of the experiment in advance, consult with their neighbour and report their predictions.

The second research question was: 'Do chemistry teachers evaluate the impact of chemistry demonstrations on students' performance and interest in learning chemistry significantly differently?' and, in this context, the answers to four items from the questionnaire were totalled to determine the teachers' opinion about the impact of chemistry demonstrations on students' performance in chemistry and their impact on students' interest in it. Teachers expressed their opinions on the impact of chemistry demonstrations on the quality of the homework done, the practical work of the students, and the results of the students' knowledge tests.

Table 4

*Teachers' opinions on the effects of demonstration experiments.*

	<i>N</i> *	<i>Me</i>	<i>IQR</i>	<i>Z</i>	<i>p</i>
Effect on chemistry achievements	78	17	3		
Effect on interest	78	17	3	-.325	.745

Note. \*Three teachers did not complete the survey.

Although there were no statistically significant differences ( $Z = -.325$ ;  $p = .745$ ) between teachers' assessments of the impact of chemistry demonstrations on students' performance in chemistry and motivation to learn it, the results show that teachers assess a slightly greater effect of demonstration experiments on students' performance ( $Me = 17$ ;  $IQR = 3$ ) than on their motivation to learn chemistry ( $Me = 17$ ;  $IQR = 3$ ). Teachers' responses gave results similar to those in the literature, where

teachers participating in the study said that demonstrations had a positive effect on students' practical work, their exam results, their understanding of chemistry concepts and their motivation for homework and laboratory work (Price & Brooks, 2012).

The authors attributed the effects of demonstration experiments to the performance of the students much more than the effects on motivation, which is also in line with the results of our research.

Similar results were found by Basheer, Hugerat, Kortam, and Hofstein (2017), who also believe that demonstrations, if done correctly, increase students' understanding of certain chemical phenomena, their motivation and their interest in learning chemistry.

The third research question was: 'Do chemistry teachers with different lengths of teaching experience have significantly different opinions about the impact of chemistry demonstrations on students' knowledge of chemistry?' In this case, the teachers had to give their agreement to four statements using a 5-point Likert scale according to their years of experience in teaching chemistry, teachers were divided into three groups: (1) 1–5 years, (2) 6–15 years and (3) more than 15 years.

Table 5

*Teachers' opinions on the impact of chemistry demonstrations on students' chemistry knowledge based on their years of experience in teaching chemistry.*

Statement	Years of experience in teaching chemistry	N	$\bar{R}$	$\chi^2$	df	p
Chemistry demonstrations help students to make links between the three levels of chemical representation (macro, sub-micro and symbolic representation).	1-5 years	12	40.8	.681	2	.711
	6-15 years	20	42.3			
	more than 15 years	46	37.6			
	Total	78				
Chemistry demonstrations increase students' confusion about abstract chemical concepts.	1-5 years	12	46.9	1.972	2	.373
	6-15 years	20	40.4			
	more than 15 years	46	37.2			
	Total	78				
Chemistry demonstrations help the students to relate the particle nature of matter to the observations of the demonstration.	1-5 years	12	38.7	.069	2	.966
	6-15 years	20	38.8			
	more than 15 years	46	40.0			
	Total	78				
Chemistry demonstrations develop the students' curiosity to learn more about chemistry.	1-5 years	12	35.3	1.390	2	.499
	6-15 years	20	37.5			
	more than 15 years	46	41.5			
	Total	78				

There are no significant differences between teachers with different experience in teaching chemistry and their agreement with the following statements: 1) 'Demonstrations help students make links between the "three levels" of chemistry representation (macro, sub-micro and symbolic representation)', ( $\chi^2 = 0.681$ ;  $df = 2$ ;  $p = .711$ ); 2) 'Demonstrations increase students' confusion about abstract chemistry concepts', ( $\chi^2 = 1.972$ ;  $df = 2$ ;  $p = .373$ ); 3) 'Demonstrations help students relate the particle nature of matter to the observations in the demonstration', ( $\chi^2 = 0.069$ ;  $df = 2$ ;  $p = .966$ ); 4) 'Demonstrations develop in students a curiosity to know more about chemistry', ( $\chi^2 = 1.390$ ;  $df = 2$ ;  $p = .499$ ). Although there are no significant differences between the teachers, we can say that most of them agree with all statements, regardless of their teaching experience.

The fourth research question was: 'Do chemistry teachers who conduct a varying number of chemistry demonstrations in their classes evaluate the impact of chemistry demonstrations on student performance and interest in chemistry education significantly differently?'. Teachers were divided into three groups according to how often they carry out demonstrations, and the answers to four items from the questionnaire were totalled to determine their opinion about the effects of demonstration experiments on students' performance in chemistry and their impact on students' interest in learning chemistry. Teachers expressed their opinions on the impact of demonstration experiments on the quality of the homework done and the practical work of the students, the results of the students' knowledge tests, and their level of knowledge of chemical concepts.

Table 6

*Teachers' assessments of the impact of chemistry demonstrations on student performance in chemistry and interest in learning chemistry based on the frequency with which teachers conduct chemistry demonstrations.*

	Frequency of performing demonstration experiments	N	$\bar{R}$	$\chi^2$	df	p
Effect on chemistry achievements	Rarely or approx. once a month	9	32.7	2.550	2	.279
	Twice or three times a month	37	34.4			
	Once, twice or three times a week	27	42.1			
	Total	73				
Effect on interest	Rarely or approx. once a month	9	38.8	4.463	2	.107
	Twice or three times a month	37	31.6			
	Once, twice or three times a week	26	42.7			
	Total	72				

The Kruskal-Wallis Test showed no significant differences between teachers with different frequencies of conducting chemistry demonstrations and their assessments of the impact of chemistry demonstrations on student performance in chemistry ( $\chi^2 = 2.550$ ;  $df = 2$ ;  $p = .279$ ). In the sample, teachers who conduct chemistry demonstrations two or three times a month estimated that chemistry demonstrations have a more positive effect on both chemistry performances than teachers who conduct chemistry demonstrations rarely or about once a month and once, twice or three times a week.

There were also no significant differences between teachers with different frequencies of conducting chemistry demonstrations and their assessments of the impact of chemistry demonstrations on students' interest in learning chemistry ( $\chi^2 = 4.463$ ;  $df = 2$ ;  $p = .107$ ). In the sample, teachers who conduct chemistry demonstrations once, twice or three times a week estimated that chemistry demonstrations have a more positive effect on both students' performances in chemistry than teachers who conduct chemistry demonstrations rarely or about once a month and twice or three times a month.

In summary, no matter how often teachers conduct chemistry demonstrations, there is no difference in their assessments of how demonstration experiments contribute to students' interest and achievement in chemistry, which can mean that the effect is always the same, regardless of how often they perform chemistry demonstrations. However, average rankings show that teachers who conduct chemistry demonstrations attribute a slightly greater effect to student performance and motivation to chemistry demonstrations.

## Conclusions

The results show that most teachers involve their students in chemistry demonstrations by asking them to write down, comment on, and/or explain their observations, followed by the students who observe the experiment.

The results show that there are no significant differences between teachers' assessments of the effect of chemistry demonstration on performance in chemistry and students' interest in chemistry lessons. The impact of the chemistry demonstration experiments on the students' performance became almost as important as their impact on the students' interest.

The results show that there are no significant differences between teachers with different lengths of teaching experience with regard to their opinions on the effects of chemistry demonstrations on the students' chemistry knowledge. Despite their different lengths of teaching experience, most teachers agreed with the statements of the questionnaire. However, the results also show

that a larger proportion of teachers, especially senior teachers, should have considered that demonstration experiments have a positive effect on the quality of the students' chemical knowledge. From this perspective, it is important to provide continuous training for teachers so that the quality and frequency of chemistry demonstrations remains high and in line with recent trends in education. Only in this manner can teachers influence the quality of students' chemical knowledge through chemistry demonstrations.

The results show that there are no significant differences between teachers who conduct a varying number of chemistry demonstrations in their classes on the impact of chemistry demonstrations on student performance and interest in learning chemistry. Teachers who frequently (once, twice or three times a week) conduct demonstration experiments believe that demonstrations have a greater impact on students' performance in chemistry and their interest in learning chemistry.

In summary, it can be said that the more often teachers conduct chemistry demonstrations in their classes, the more motivated and successful the students are in chemistry lessons. It is also logical that teachers who conduct chemistry demonstrations less frequently or not at all find that the motivation and performance of the students are not affected by the chemistry demonstrations. The reason for such an assessment may be that they have carried out chemistry demonstrations in the past and have seen that they do not influence the interest and performance in chemistry, or they do not know what effect demonstration experiments would have if they were carried out frequently and, above all, pedagogically correctly.

#### *Limitations of the research*

Based on the research design, the following limitations can be identified: 1) small sample of participating teachers, 2) some of the teachers participating in the research did not complete the questionnaire, 3) it is not possible to obtain data on the students' chemistry achievements, their interest in learning chemistry and the impact of conducting chemistry demonstrations, and 4) it is difficult to assess the actual course of chemistry teaching on the basis of the questionnaire because the respondents' teaching was not systematically monitored.

#### *Application for chemical education*

On the basis of the research results, some guidelines for the implementation of the findings in the educational process can be introduced. It is necessary to emphasise the importance of experimental work and thus of chemistry demonstrations in courses at the university during pre-service chemistry teacher



education. This would require the preparation of materials and e-units to help in-service and pre-service teachers to prepare and conduct chemistry demonstrations in their classes. It is also important to involve teachers in projects that explore new principles and the ways of conducting chemistry demonstrations in schools, such as the SQER<sub>3</sub> model proposed by Chamely-Wiik et al. (2014). Professional development programmes are also important for teachers currently teaching in schools and who have not been able to acquire this knowledge during their studies, as trends in the educational process change and improve. Such programs would introduce teachers to the importance of demonstration experiments to develop high quality chemical knowledge and to motivate students, as well as to ways of implementation, with particular emphasis on inquiry-based learning.

#### *Guidelines for further research*

It would be highly advisable to obtain a slightly larger sample of teachers in the course of further research, which would show a somewhat more realistic situation regarding the use of chemistry demonstrations in Slovenian primary and secondary schools. A similar questionnaire would also be given to the students of the participating teachers to see how their views and opinions on chemistry demonstrations in chemistry lessons differ. In addition, teachers should be observed in class to determine how they teach, what demonstrations they give, when they give them and how often. It would also be helpful to implement different approaches to experimental work in the classroom and to identify those that have a greater impact on students' interest in learning chemistry and their achievements.

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## Fraction Sense: An Analysis of Preservice Mathematics Teachers' Cognitive Obstacles

TATIK RETNO MURNIASIH<sup>1</sup>, CHOLIS SA'DIJAH<sup>\*2</sup>, MAKBUL MUKSAR<sup>3</sup> AND  
SUSISWO<sup>2</sup>

Research on cognitive obstacles related to fraction sense in preservice mathematics teachers is significant, because their success depends on their skills. The acquisition of fraction sense is a complicated problem requiring a strategy to solve it. This study presents cognitive obstacles with fraction sense tests in preservice who will teach in secondary schools. It focuses on the following categories of cognitive obstacles: epistemological (language representation, tendency to generalise and rely on intuition) and didactic (less meaningful learning, and strategy). This paper takes a qualitative descriptive approach to examine 20 preservice mathematics teachers. The preservice teachers who encountered cognitive obstacles related to fraction sense testing were then grouped based on the similarity of their answers, and seven of them were selected to be interviewed. The research findings showed that five preservice teachers had overlapping obstacles: language representation and tendency to generalise; tendency to generalise and less meaningful learning; language representation, tendency to rely on intuition and trial and error strategy in; language representation and trial and error; and language representation and tendency to rely on intuition.

**Keywords:** fraction sense, cognitive obstacle, preservice teacher

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## Razumevanje koncepta ulomkov: analiza kognitivnih ovir bodočih učiteljev matematike

TATIK RETNO MURNIASIH, CHOLIS SA'DIJAH, MAKBUL MUKSAR IN SUSISWO

~ Raziskave kognitivnih ovir v povezavi z razumevanjem koncepta ulomkov bodočih učiteljev so pomembne, saj je uspeh učiteljev odvisen od njihovih veščin. Usvojitev razumevanja koncepta ulomkov predstavlja kompleksen problem; za njegovo rešitev je potrebna strategija. V raziskavi so predstavljene kognitivne ovire bodočih učiteljev, ki bodo poučevali v srednjih šolah, na primeru testov razumevanja koncepta ulomkov, pri čemer se raziskava osredinja na naslednji kategoriji kognitivnih ovir: epistemološke (jezikovna predstavitev, težnja po posploševanju in zanašanju na intuicijo) in didaktične (manj smiselno učenje in strategija). Pri preučevanju skupine dvajsetih bodočih učiteljev matematike je bil uporabljen kvalitativni deskriptivni pristop; preizkušanci, ki so naleteli na kognitivne ovire pri testu razumevanja koncepta ulomkov, so bili razvrščeni na podlagi podobnih odgovorov; s sedmimi je bil nato opravljen intervju. Ugotovitve raziskave so pokazale, da so se pri petih bodočih učiteljih matematike ovire prekrivale, in sicer: jezikovna predstavitev in težnja po posploševanju; težnja po posploševanju in manj smiselnem učenju; jezikovna predstavitev, težnja po zanašanju na intuicijo ter po strategiji poskusov in napak; jezikovna predstavitev ter poskusi in napake ter jezikovna predstavitev in težnja po zanašanju na intuicijo.

**Ključne besede:** razumevanje koncepta ulomkov, kognitivne ovire, bodoči učitelji

## Introduction

Number sense is defined as a good understanding of numbers and the ability to use them flexibly (Akkaya, 2016; Sađijah, 2013; Yaman, 2015); fractions and decimals are parts of number sense (Way, 2011). Number sense applied to fractions is called 'fraction sense', which is the understanding of fraction concepts, including the relationship between fractions, various representations of fractions, and flexible skills for work with fractions (Fennell & Karp, 2017; Way, 2011; Woodward, 1998).

Many mathematics experts have researched fraction sense in students (Akkaya, 2016; Ali, 2014; Charalambous & Pitta-Pantazi, 2005; Jang & Cho, 2018; Mohamed & Johnny, 2010; Prediger, 2008; Purnomo, Kowiyah, Alyani, & Assiti, 2014; Rodrigues, Dyson, Hansen, & Jordan, 2017; Sađijah, 2013; Sengul & Gulbagci, 2012). In general, these researchers studied the students' difficulties related to fraction relative measurement and the students' low level of skill with decimals, estimation, and fraction representation, including their cognitive obstacles with fraction sense tests. Cognitive obstacles are barriers to thinking, which may be caused by the mental development of the child (ontogenic), less meaningful instruction by teachers (didactic), or difficult mathematics concepts (epistemological) (Bishop et al., 2014; Brousseau, 1997; Osana & Royea, 2011; Prediger, 2008; Sbaragli et al., 2011). Cognitive obstacles caused by children's mental development can disappear with age (Brousseau, 1997).

One of the causes of students' cognitive obstacles with fraction sense is less meaningful teaching by teachers, so that the students could not complete the fraction sense tests (Cortina, Visnovska, & Zúñiga, 2014; Prediger, 2008) and found the fraction topic difficult (Lortie-Forgues, Tian, & Siegler, 2015; Ormond, 2012; Yoshida & Sawano, 2002). Therefore, students' cognitive obstacles related to fraction sense tests are induced by teachers' inability to assist students in solving the obstacles.

Based on the explanation above, research on cognitive obstacles in fraction sense assignments was conducted on both students and teachers. However, studies on cognitive obstacles with fraction sense assignments in preservice mathematics teachers have rarely been carried out (Newton, 2008; Olanoff et al., 2016; Whitacre & Nickerson, 2016). Some researchers studied the preservice teachers' difficulties with fractions (Manfreda Kolar, Hodnik Čadež, & Vula, 2018; Osana & Royea, 2011; Son & Lee, 2016). These researchers analysed preservice teachers' cognitive obstacles in fraction sense assignments, focusing on the didactic and epistemological categories. The ontogenic category was not analysed since, theoretically, obstacles caused by children's mental development

should diminish with age (Brousseau, 1997). Fraction topics are studied since elementary school, so the researchers assumed that there were no preservice teachers with ontogenic obstacles.

Research on cognitive obstacles related to fraction sense assignments is crucial, because it aids in understanding how these obstacles can be minimised. Meanwhile, most of the previous decade's research on preservice mathematics teachers related to fraction sense tests studied the fraction sense strategy used, the preservice teachers' low performance in the fraction domain, their understanding of representation and computation skills, their reasoning of fraction amounts, and their mental calculation (Courtney-Clarke & Wessels, 2014; Lemonidis, Tsakiridou, & Meliopoulou, 2018; Şengül, 2013; Son & Lee, 2016; Whitacre & Nickerson, 2016; Yang, Reys, & Reys, 2009). Consequently, a set of information is further required to acknowledge preservice teachers' cognitive obstacles on fraction sense tests.

## Theoretical background

### *Fraction sense*

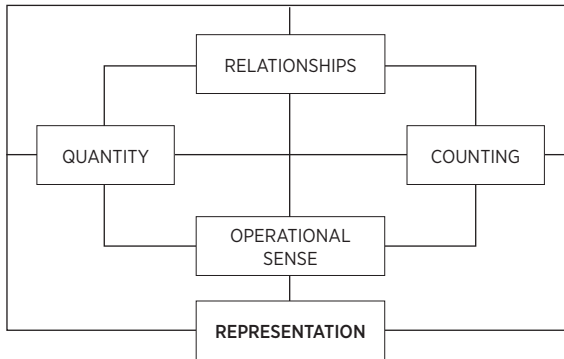
Preservice mathematics teachers with good fraction sense usually have the skill and expertise needed to manage fractions. However, the fact is that most preservice teachers' skills in fraction sense remain low (Courtney-Clarke & Wessels, 2014; Iuculano & Butterworth, 2011; Lamberg & Wiest, 2014; Sengul & Gulbagci, 2012; Whitacre & Nickerson, 2016; Yaman, 2015; Yang, Reys, & Reys, 2009). Such skills are used not only when doing mathematical calculations, but also in daily life. For example: If we have an income of six million rupiah and  $\frac{1}{5}$  is used for household needs,  $\frac{1}{3}$  is paid as taxes, and  $\frac{1}{4}$  is for children's education, we can calculate the income left over. Fraction sense is also useful as the starting point for understanding the concepts of measurement, geometry, algebra, and data analysis (Purnomo, Kowiyah, Alyani, & Assiti, 2014). Someone who calculates through algorithms does not have fraction sense (Chatopadhyay, Sarkar, & Koner, 2017). Most preservice teachers used algorithms in completing mathematical calculations without attempting to give answers that make sense (Olanoff et al., 2016), which is inappropriate, since mathematical calculation should be completed not only by using an algorithm, but also using a strategy that makes sense.

According to Way (2011), fraction sense has the following components: a) understanding fractions as a language and as written symbols, b) understanding the relationship between the number of parts and the relative size of the parts, c) having a sense of the size of the fractions in relation to the whole,



and d) being able to visualise and make fraction representations with diverse models. In Figure 1, we adapted the idea of number sense problems and numeration to fraction sense.

Figure 1. Number sense and numeration. Adapted from Ontario Ministry of



Education, 2016.

The five ideas of number sense and numeration (counting, operational sense, quantity, relationships and representation) shown in Figure 1 are related each other conceptually. In number sense, counting is the reading of a series of numbers in sequence. The conceptualisation of symbols in counting is a representation of quantity. In fraction sense, counting is generally left implicit where there are still other fractions between and , such as , and others (Simon, Placa, Avitur, & Kara, 2018). Fraction as a quantity is an arrangement of , in which the whole is arranged into  $n$  identical (super-imposable) parts, and  $m$  of those parts are designated as the measure, amount, or quantity (Simon, 2006). For example,  $\frac{4}{7}$  is defined as having the size of 4 parts out of 7 equal parts.

Relationships between numbers that are well understood help to make mathematical connections. For example, the relationships between 2 and 6 are similar to the relationships between 12 and 16, since  $6 - 2 = 16 - 12$ . These relationships involve the operational sense of reduction. Relationships also involve counting, quantity, and the operational sense, which ultimately refers to distance or sequence representations. An example of a relationship in fraction sense is the following: the relationship between  $\frac{2}{7}$  and  $\frac{3}{7}$  is the same as the relationship between  $\frac{2}{7}$  and  $\frac{3}{7}$ , since  $\frac{3}{7} - \frac{2}{7}$  yields the same result as  $\frac{3}{7} - \frac{2}{7}$ . To find the difference of  $\frac{3}{7}$  and  $\frac{2}{7}$ , as well as in  $\frac{2}{7}$  and  $\frac{3}{7}$ , involves operational sense, which in fractions is the understanding of fraction operations, the characteristics of fraction operations, and the relationships between them (Alenazi, 2016). The

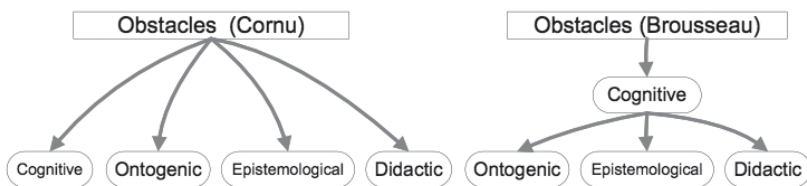
counting, quantity, relationships, and operational sense result in distance representation, since  $\frac{2}{3}$  and  $\frac{4}{6}$  have equal distance between them as  $\frac{1}{2}$  and  $\frac{3}{6}$ , namely  $\frac{1}{6}$ . In other cases, fractions can also be represented as symbols, figures, and written language (Murniasih, Sa'dijah, Muksar, & Susiswo, 2018).

### *Obstacles and fraction sense*

Cornu (1991) differentiates obstacles and learning limits into four types: cognitive, ontogenic, didactic, and epistemological obstacles. According to Cornu (1991), cognitive obstacles occur when a difficulty arises in the learning process; ontogenic obstacles occur in accordance with the child's mental development stages; didactic obstacles take place because of less meaningful teaching by the teacher; epistemological obstacles are caused by difficult mathematics concepts. Brousseau (1997) challenge Cornu's definitions of obstacles. He stated that knowledge acquisition occurs in a complex interaction between students, teachers, and the knowledge system (Brousseau, 1997). In this model, it is difficult to divide obstacles to learning into types. Obstacles can be caused by ontogenic development, a difficult lesson, and less meaningful teaching conducted by teachers. Brousseau (1997) stated that cognitive obstacles could be ontogenic, didactic, and epistemological.

The classifications of obstacles according to Cornu and Brousseau are shown in Figure 2.

Figure 2. The difference in obstacle classification, according to Cornu (1991)



and Brousseau (1997).

Cognitive obstacles in fraction sense tests are most likely influenced by didactic and epistemological obstacles as well (Prediger, 2008; Purnomo, Kowiyah, Alyani, & Assiti, 2014; Sbaragli et al., 2011; Yoshida & Sawano, 2002). Didactic obstacles in teaching fractions could happen because of the teacher's practices (Pinilla, 2007). The research results of Prediger (2008) indicate that the didactic category was used to analyse conceptual change obstacles when moving from integers to fractions. For example, How the teacher observes the obstacles of students' thinking process when teaching changes from the concept

of integers (there are no numbers between 5 and 6) to the concept of fractions (there are many fractions between  $\frac{1}{3}$  and  $\frac{1}{5}$ ). According to Purnomo, Kowiyah, Alyani, and Assiti, (2014), epistemological obstacles in learning fraction sense occur when someone does not understand fraction density. For example, the students' mistakes related to the density of fractions: the students stated that there was no fraction between  $\frac{40}{99}$  and  $\frac{41}{99}$ ; this was because the students linked their pre-existing knowledge of integers to fractions, and said that there was no number between 40 and 41. Meanwhile, according to Bishop et al. (2014), a cognitive obstacle is a piece of useful knowledge for solving a particular problem, but one that generates a contradiction when it is applied in the new context. The tendency to generalise the result of positive integer's multiplication to be bigger than its two factors is not applicable in the positive fraction multiplication. For instance, in the multiplication of multiple integers of  $3 \times 5$  equals to 15, in which  $15 > 3$  and  $15 > 5$ . Meanwhile, in the multiplication of positive fractions of  $\frac{1}{3} \times \frac{1}{5}$  equals to  $\frac{1}{15}$ , in which  $\frac{1}{15} < \frac{1}{3}$  and  $\frac{1}{15} < \frac{1}{5}$ . Obstacles play an essential role in learning, since they force the learners to modify and adjust some aspects of their mindset in resolving the contradiction. Bishop et al. (2014) recommended researching cognitive obstacles based on a specific problem that is considered difficult using a test conducted in a low-performance school. An example of a cognitive obstacle that may occur when learning fractions is difficulties with equal-partitioning and equal-whole relationships (Yoshida & Sawano, 2002). Up to that point, the students have been taught fraction representation with similarly partitioned units, which may become an obstacle for students when they encounter fraction representation with unequal partitions.

## Research question

In general, this study aims to analyse preservice mathematics teachers' understanding of the size of fractions, which is related to fraction sense. We want to answer the following questions:

1. How can we identify preservice mathematics teachers' cognitive obstacles in understanding the size of fractions?
2. What are the factors that cause the preservice mathematics teachers' cognitive obstacles in understanding the size of fractions?

## Methodology

This research was conducted using qualitative descriptive data. Preservice mathematics teachers' cognitive obstacles related to fraction sense were analysed based on the accomplishment of a written test and an interview.

### *Sample*

The research participants were drawn from a group of 69 preservice mathematics teachers who will teach in secondary schools in one of the private universities in Malang City, Indonesia, who intend to teach in secondary schools. These preservice teachers were students who had taken the courses Mathematics Principles and the Mathematics Instruction in School I. Both courses were designed to help the participants understand fractions.

The 69 candidates were asked to complete an initial test on fractions. They were then ranked from lowest to highest based on their test scores. Then, 20 representative preservice mathematics teachers were selected for the study: eight people with the lowest rank (X1, X2, X3, X4, X5, X6, X7, and X8), seven with middle rank (X9, X10, X11, X12, X13, X14, and X15), and five with the highest rank (X16, X17, X18, X19, and X20).

### *Instruments and measures*

The instruments employed in this study were 1) a test consisting of one question; 2) a recording device; 3) interview guidelines and 4) a field note. The test was given to establish the cognitive obstacles in fraction sense problems. The test with fraction sense problems was adapted from Clarke, Roche, and Mitchell (2011). The problems were designed to measure preservice mathematics teachers' cognitive obstacles related to understanding the size of fractions. The test was also used to measure cognitive obstacles based on mistakes in answers. The test sheets were distributed to 20 selected preservice teachers. Afterwards, interviews were conducted to investigate whether the cognitive obstacles occurring should be classified as didactic or epistemological. The test that was given can be seen in Figure 3.

The numbers 4, 3, 1, 6, 5, and 7 are given. Each number can only be used once. Make two fractions, in which the numerator and denominator each contains one number, so that if the fractions are added together, the sum will be closest to 1, but not actually 1.

$$\frac{\square}{\square} + \frac{\square}{\square}$$

Figure 3. The fraction sense test. Adapted from Clarke, Roche, & Mitchell, 2011.

The focus of this study was on the preservice teachers' understanding of the size of fractions. The indicators of cognitive obstacles in the fraction sense test can be seen in Table 1, and the categories of cognitive obstacles in Table 1 are adapted from the previous research. They include the tendency to generalise (O4 and O5) (Bishop et al., 2014; Yoshida & Sawano, 2002); the tendency to rely on intuition (O6) (Purnomo, Kowiyah, Alyani, & Assiti, 2014); less meaningful learning (O7) and strategy (O8) (Pinilla, 2007; Olanoff et al., 2016; Prediger & Wessel, 2010). The category of cognitive obstacles (O1, O2, and O3) was added based on the theory shown in Figure 1 (representation).

Table 1

*Cognitive obstacles, their indicators, and their classification by type*

Cognitive obstacles	Indicators	Types of obstacles
Epistemological	The preservice teachers understand 'closest to 1, but not actually 1' to mean two fractions with an ordered numerator and the same denominator, for example: $\frac{6}{7}$ , or $\frac{8}{7}$ , the closest to $\frac{1}{7}$ (the obstacle of language representation defined as fraction order)	O1
	The preservice teachers used a given number more than once (the obstacle of representation from language to symbol)	O2
	The preservice teachers chose the addition of a fraction with a distance of 0 from 1 (the obstacle of language representation when interpreting 'distance of 0 from 1')	O3
	The preservice teachers added the fraction by adding the numerator and numerator as well as denominator and denominator	O4
	The preservice teachers relied on pre-existing knowledge of integers and decided that the numbers closest to 1 were 0 or 2.	O5
	The preservice teachers did not mention the fraction density	O6
Didactic	The preservice teachers forgot the numerator and denominator.	O7
	The preservice teachers used a trial and error strategy, not a fraction sense strategy.	O8

During the activity, this study used visual and voice recording devices. The visual recording device was used to record the preservice mathematics teachers' facial expressions while they did the assignment. The voice recording device was used to record the interviews. After that, we took field notes while we observed

the preservice teachers working on the questions, and while they answered the interview questions. The selection of interview subjects can be seen in Figure 4.

### *Processing data*

The preservice mathematics teachers were given a fraction sense assignment, and their answers were analysed. Those who answered the question correctly were not interviewed. The preservice teachers who made mistakes were grouped based on their answers, and one representative from each group was chosen for an interview. After that, the answers were categorised based on cognitive obstacles. The researchers followed an interview guideline when they interviewed the preservice teachers, discussing their cognitive obstacles more thoroughly. This was done based on the recommendations of Bezpalko, Klishevych, Liakh, and Pavliuk (2016), who stated that interview guidelines are useful for investigating a particular problem more thoroughly.

The selection of preservice mathematics teachers to be interviewed can be seen in Figure 4.

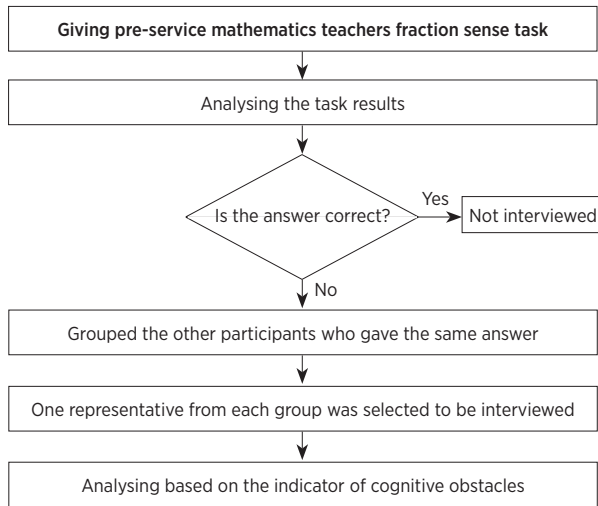


Figure 4. Selection of preservice mathematics teachers for interviews.

Data analysis in this study followed the stages defined by Milles & Huberman (2009): transcribing the collected data, validating the data, interpreting the data, and drawing a conclusion. Transcribing the collected data included making a verbal data transcript of the preservice teachers' opinions, making an interview data transcript, making a duplicate of the completed assignment, and arranging the data by category. The next stage was examining the preservice teachers' work, recordings,

field notes, and interview results. The collected data were reduced to focus on the data that were relevant to the research. The data were classified and coded based on the assigned category. Subsequently, the data were validated using source triangulation. The next step was interpreting the data description results, namely the preservice mathematics teachers' cognitive obstacles in the fraction sense problem. A conclusion was then drawn from the data obtained from all analyses.

## Results

The right answer to the question in Figure 3 is  $\frac{5}{6} + \frac{1}{7}$ . Based on the estimation and benchmark, the two largest fractions are  $\frac{6}{7}$  and  $\frac{5}{6}$ . If  $\frac{6}{7}$  is chosen, the remaining numbers in the question cannot be used to form a fraction that, when added, yields a number close to 1, but not 1. This means that  $\frac{5}{6}$  should be chosen. Then, the remaining numbers are used to form the second fraction, which should be smaller than  $\frac{1}{6}$ . The only possible second fraction is  $\frac{1}{7}$ , since the addition of  $\frac{5}{6} + \frac{1}{7}$  will result in the fraction that is closest to 1 and is not 1. Only 10% out of the twenty participants answered correctly. This amounted to two preservice teachers, X19 and X20, who used a fraction sense strategy by counting the fractions flexibly and efficiently, which shows that they have a strong and flexible understanding of fractions and the relationships between them.

The fraction sense test can be seen in Figure 3. Based on the answers they gave, 18 out of 20 preservice teachers had cognitive obstacles in understanding the size of fractions. The incorrect answers given by the preservice mathematics teachers are presented in the following Table 2.

Table 2

*Incorrect answers given by 18 out of 20 preservice mathematics teachers on a test involving the sizes of fractions*

Preservice teachers (Percentage)	Answer
X1 (5%)	$\frac{4}{3} + \frac{3}{4}$
X2 (5%)	$\frac{5}{4} + \frac{7}{6}$
X3 (5%)	$\frac{3}{4} + \frac{1}{6}$
X4, X5 (10%)	$\frac{4}{7} + \frac{1}{3}$
X6, X7, X8, X9, X10, X11, X12, X13, X14 (45%)	$\frac{3}{4} + \frac{1}{5}$
X15, X16 (10%)	$\frac{4}{5} + \frac{1}{6}$
X17, X18 (10%)	$\frac{1}{3} + \frac{4}{6}$

The preservice mathematics teachers with cognitive obstacles were grouped based on their answers. Those who gave similar answers were grouped together. After that, seven representative preservice teachers were selected to be interviewed for in-depth analysis. X1 represented the answer  $\frac{4}{3} + \frac{3}{4}$ , X2 represented  $\frac{5}{4} + \frac{7}{6}$ , X3 represented  $\frac{3}{4} + \frac{1}{6}$ , X5 represented  $\frac{4}{7} + \frac{1}{3}$ , X11 represented  $\frac{3}{4} + \frac{1}{5}$ , X15 represented  $\frac{4}{5} + \frac{1}{6}$ , and X17 represented  $\frac{1}{3} + \frac{4}{6}$ . Those preservice teachers were selected as representatives because they had good communication skills and were willing to allocate time for the interview. The interview was conducted outside class time. The results of the interviews with the seven preservice teachers can be seen in Table 3.

Table 3  
*Responses of seven preservice teachers during the interview*

Number	Preservice teachers	Preservice teachers' responses during interview	Types of obstacles
1	X1	The preservice teacher X1 chose $\frac{4}{3} + \frac{3}{4}$ because $\frac{4}{3} + \frac{3}{4} = \frac{7}{7}$ . This teacher used the same numbers more than once. This teacher also correlated with the pre-existing knowledge of integers, and when he was given a fraction problem, he generalised by adding the denominators as well as the numerators. This teacher said that the closest number to 1 but which is not 1 is 0 distance from 1.	O2, O3, O4
2	X2	The preservice teacher X2 chose $\frac{5}{4} + \frac{7}{6}$ and his reasons were that the numerators should be smaller than the denominators, and that the numerator should be close to the denominator. However, the teacher thought that the numerator was the denominator and vice versa. Preservice teacher X2 also stated that the sum of $\frac{5}{4} + \frac{7}{6}$ is equal to with $1 + 1 = 2$ (this teacher stated that the number 2 was close to the number 1).	O5, O7
3	X3	The preservice teacher X3 had initially tried other answers, namely $\frac{3}{5} + \frac{1}{7} = \frac{21+5}{35} = \frac{26}{35}$ and $\frac{3}{5} + \frac{1}{4} = \frac{12+5}{20} = \frac{17}{20}$ , and finally decided on the answer $\frac{3}{4} + \frac{1}{6} = \frac{9+2}{12} = \frac{11}{12}$ since $\frac{11}{12}$ is the closest number to 1. After that, the preservice teacher X3 drew a number line and divided the number line between 0 and 1 into 12 parts, and then positioned to the left of 1.	O1, O6, O8
4	X5	The preservice teacher X5 relied on feeling when he chose a fraction that could be easily represented in decimal form, namely $\frac{1}{3} = 0.3$ . After that, this teacher chose the fraction of $\frac{5}{6}$ . However, since $\frac{5}{6} + \frac{1}{3} = 0.8 + 0.3 = 1.1$ (closest to 1), he then tried to add $\frac{1}{3}$ and $\frac{4}{7}$ , since $\frac{4}{7} + \frac{1}{3} = 0.6 + 0.3 = 0.9$ . The preservice teacher X5 interpreted 'the closest number to 1 which is dissimilar to 1' as language representation of a fraction order (the order after $\frac{9}{10}$ is $\frac{10}{10}$ ).	O1, O8
5	X11	The preservice teacher X11 chose $\frac{3}{4} + \frac{1}{5} = 0.75 + 0.20 = 0.95$ . He thought that 0.95 was the number closest to 1 that is not 1. The preservice teacher drew a number line and placed 0.95 to the left of 1. This teacher did not try any other fraction.	O1



Number	Preservice teachers	Preservice teachers' responses during interview	Types of obstacles
6	X15	The preservice teacher X15 chose the first fraction whose value was close to 1, namely $\frac{4}{5}$ . He thought that adding $\frac{1}{5}$ would give a sum of 1, so he decided to select $\frac{1}{6}$ as the second fraction. This teacher stated that the reason that $\frac{4}{5} + \frac{1}{6}$ would result in a fraction smaller than one. He stated that $\frac{29}{30}$ was the fraction located on the left side of 1 on the number line. This teacher said that there was no other fraction between $\frac{29}{30}$ and $\frac{30}{30}$ .	O1, O6
7	X17	The preservice teacher X17 thought that the addition of $\frac{1}{3} + \frac{4}{6}$ would result in one. The preservice teacher X17 stated that the number 1 with 0 distance was the closest to number 1.	O3

Based on the interview responses in Table 3, the preservice mathematics teachers' cognitive obstacles related to the fraction sense test can be investigated further.

## Discussion

Participants X1, X2, and X3 underwent overlapping cognitive obstacles. In Table 3 (1), the preservice teacher X1 generalised the answer by relating it to the addition of integers, so that when he needed to add fractions, he added the denominators as well as the numerators (O4). This happened because the preservice teachers did not understand the characteristics of operations with fractions with different denominators (operational sense). This result is consistent with the research reporting that the tendency to generalise from pre-existing knowledge can lead to a contradiction when facing new knowledge (Bishop et al., 2014). Previous knowledge that is poorly understood will be one of the inhibitory factors in solving the problem (Magajna, 2013). However, the results of the present study were different from the study conducted by Bishop et al., (2014) in that besides the tendency to generalise from previous knowledge, there was an overlapping obstacle of representation from language to symbol in the interpretation of the statement 'each number can only be used once.' The answer of the preservice teacher X1 used both 3 and 4 twice (O2), even though the question stated that 'each number can only be used once.' The cognitive obstacles related to representation from language to symbol and the tendency to generalise caused the preservice teacher X1 to answer the question incorrectly. This result corresponds to the research conducted by Murniasih, Sa'dijah, Muksar, and Susiswo (2018), who reported that many preservice teachers made mistakes in representation when transitioning from written language to the fraction symbol. Based on the results of the interview with the preservice teacher X1, he also encountered an O3 obstacle. He also stated that he considered

fractions difficult, which is consistent with the studies of Fatqurhohman, Sa'dijah, Irawan, and Sulandra, (2017), Lortie-Forgues, Tian, and Siegler (2015), and Prayitno, Purwanto, Subanji, and Susiswo (2018).

In Table 3 (2), the preservice teacher X2 confused the numerator with the denominator (O7). This was caused by less meaningful learning. Meaningful learning should be created in the classroom so that the students do not easily forget a particular concept (Pinilla, 2007; Subanji, 2016; Fatqurhohman, Sa'dijah, Irawan, & Sulandra, 2017). The less meaningful learning obstacle also overlapped with the tendency to generalise (O5). The preservice teacher X2 thought that  $\frac{5}{4} + \frac{7}{6}$  was probably equal to 2. This teacher correlated with his pre-existing knowledge of integers by saying that 2 was close to 1.

In Table 3 (3), the preservice teacher X3 said that  $\frac{11}{12}$  was the closest number to  $\frac{12}{12}$  or 1. The preservice teacher used a trial and error strategy to obtain the answer (O8), which is not wrong, but is a time-consuming way of finding the answer. The researchers asked if there might be any other fraction between  $\frac{11}{12}$  and  $\frac{12}{12}$ . The preservice teachers answered there was no possibility of this by representing the fraction  $\frac{11}{12}$  on the left side of number 1 in the number line. The preservice teacher X3 stated that after  $\frac{11}{12}$ , the next fraction was  $\frac{12}{12}$ . The researchers concluded that the preservice teacher did not understand fraction density, and encountered the obstacle known as the tendency to rely on deceptive intuition (O6), and also a language representation obstacle with the fraction order of one twelfth (O1). This case is consistent with the study of Purnomo, Kowiyah, Alyani, and Assiti, (2014) reporting that obstacles in fraction sense occurred when someone did not understand the density of fractions. However, the present research differed in that there was an overlapping between the tendencies to rely on intuitive experience when dealing with fraction density.

Based on the answer in Table 3 (4), the preservice teacher X5 faced the obstacle of trial and error (O8). This teacher wrote the answer of  $\frac{4}{7} + \frac{1}{3} = 0.6 + 0.3 = 0.9$  because 0.9 is the only a decimal bigger than 0.9 and less than one located right on the left side of one (O1). However, this reason is incorrect due to the existence of many decimals between 0.9 and one, such as 0.91, 0.93, 0.97, and so forth.

The results of the interview showed that the preservice teacher X11 encountered an obstacle of language representation when interpreting order, and stated that  $\frac{3}{4} + \frac{1}{5} = 0.75 + 0.20 = 0.95$  was the fraction whose position was on the left side of 1 (O1). The pre-service teacher X15 stated that  $\frac{4}{5} + \frac{1}{6} = \frac{29}{30}$ . The researcher asked whether there were fractions between  $\frac{29}{30}$  and  $\frac{30}{30}$ , and the teacher stated that there were none, and thus encountered an O6 obstacle. The preservice teacher contended that  $\frac{29}{30}$  was the fraction order before  $\frac{30}{30}$ . This means that the teacher

faced the obstacle of language representation when interpreting the fraction order (O1, X15 also stated). Meanwhile, the preservice teacher X17 answered  $\frac{1}{3} + \frac{4}{6} = \frac{6}{6}$ . According to the result of the interview, X17 thought that  $\frac{6}{6}$  is the closest number to 1 since the distance between them is 0. Thus, it can be concluded that X17 experiences a language interpretation obstacle (O3).

The results show that the seven preservice teachers encountered cognitive obstacles in understanding the size of fractions. Therefore, building fraction sense for preservice teachers is essential (Whitacre & Nickerson, 2016). The cognitive obstacles of seven preservice mathematics teachers presented in Table 3 are also shown in Figure 5.

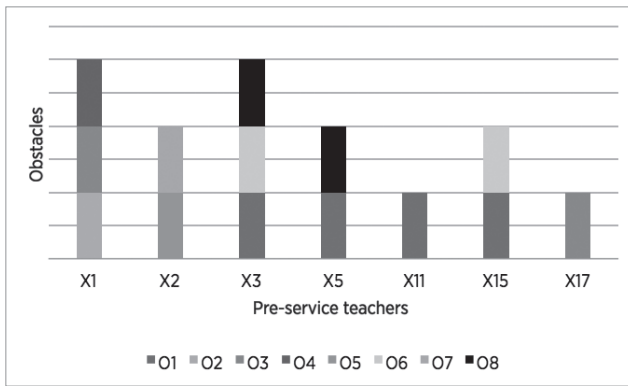


Figure 5. Cognitive obstacles of seven preservice mathematics teachers.

The research findings are further described in Figure 6.

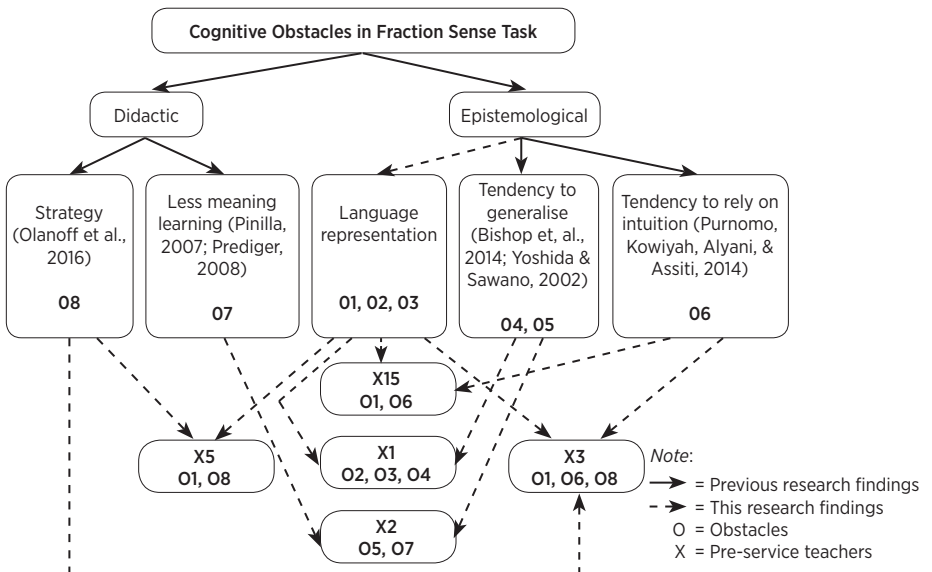


Figure 6. The overlapping cognitive obstacles in preservice mathematics teachers.

As shown in Figure 6, the cognitive obstacles related to fraction sense in the seven preservice teachers were divided into two categories: didactic and epistemological. Generally, the three biggest obstacles encountered by the seven preservice mathematics teachers are presented in Figure 5. Those obstacles are language representation (O<sub>1</sub>), the tendency to rely on intuition (O<sub>6</sub>), along with trial and error strategy (O<sub>8</sub>). The research also showed that the preservice teachers faced overlapping cognitive obstacles, especially teacher X<sub>1</sub> (type O<sub>2</sub>, O<sub>3</sub> and O<sub>4</sub>), X<sub>2</sub> (type O<sub>5</sub> and O<sub>7</sub>), X<sub>3</sub> (type O<sub>1</sub>, O<sub>6</sub>, and O<sub>8</sub>), X<sub>5</sub> (type O<sub>1</sub> and O<sub>8</sub>), and X<sub>15</sub> (type O<sub>1</sub> and O<sub>5</sub>). This is consistent with the discussion of experts, who state that differentiating cognitive obstacles from the other types of obstacle is a complicated thing (Nyikahadzoyi, Mapuwei, & Chinyoka, 2013). In fact, the obstacles discussed here are not easy to distinguish from one another.

## Conclusions

We conclude by answering the research questions. First, this study found that preservice mathematics teachers' cognitive obstacles related to fraction sense were epistemological and didactic, which is consistent with previous research reporting that didactic obstacles in learning fractions could happen due to less meaningful learning (Pinilla, 2007; Prediger, 2008). Meanwhile, epistemological obstacles to working with fractions occurred when someone did not understand fraction density (Purnomo, Kowiyah, Alyani, & Assiti, 2014), and could not solve new problems when contradictors arose with pre-existing knowledge (Bishop et al., 2014). Second, these results show that the types of cognitive obstacles observed were related to language representation, the tendency to generalise, the tendency to rely on intuition, strategy and less meaningful learning which are all defined as cognitive obstacles according to Brousseau (1997). These cognitive obstacles led to an incorrect answer. Based on the written answers and interview responses of the seven preservice teachers, the biggest obstacle was language representation. The obstacle related to language representation corresponds to the research conducted by Prediger and Wessel (2010), who found that a thorough understanding of language is necessary for working with fractions.

We also found that overlapping obstacles occurred in the cases of five preservice teachers. These were language representation with a tendency to generalise, a tendency to generalise with less meaningful learning, language representation with both the tendency to rely on intuitive experience and less meaningful learning, language representation with less meaningful learning, and language representation with a tendency to rely on intuitive experience.

Third, the factors causing cognitive obstacles with fraction sense tests in preservice mathematics teachers were the preservice mathematics teachers' low level of skill with fraction sense tests, the fact that fraction sense is considered difficult by preservice mathematics teachers, and less meaningful learning. Based on the result of this study, the cognitive obstacles are overlapping with epistemological and didactic categories. This finding does not support Brousseau's theory postulating that epistemological and didactic categories are clearly separated. Further research is recommended to apply the scheme of the five big ideas from number sense to fraction sense, and use it to analyse the cognitive obstacles more thoroughly.

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## Heritage Preservation Education: Teachers' Preconceptions and Teachers Implementation in Visual Arts Classes

ROBERT POTOČNIK<sup>1</sup>

☞ In Slovenia, teachers of the school subject visual arts (implemented at the primary level by primary school teachers and at secondary level by fine visual arts teachers) play a significant role in planning and implementing visual arts tasks with preservation concepts. With these activities, they can raise awareness of cultural heritage meaning, strengthening the nation's cultural identity. Pupils should develop into active and responsible citizens who are able to understand heritage problems in general and express their sensitivity and respect for their cultural heritage and its preservation. The main purpose of this paper is to identify the teachers' preconceptions about the preservation of architecture in the Slovenian countryside and the implementation of heritage preservation concepts in visual arts teaching. Altogether, 125 teachers from Slovenia participated in this study. The research revealed the teachers' preconceptions regarding some problems in the Slovenian countryside, as well as sufficient awareness of the importance of the implementation in heritage preservation concepts in visual arts activities, according to contemporary professional guidelines. Teachers' preconceptions reveal a lack of some basic knowledge of preservation concepts, which lead us to compare the results with the current guidelines. It can be concluded that greater emphasis should be placed on developing training programmes for teachers with specific preservation concepts and didactic materials for students in the field of preservation education with the aim of developing the students' positive and responsible attitudes to those problems. More heritage preservation education content should be incorporated into pre- and in-service teachers' education, and teachers should develop competences to implement these topics into their teaching.

**Keywords:** visual arts education, heritage preservation education, preservation of architecture in the Slovenian countryside, teacher's preconceptions and implementation

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## Ozaveščanje o skrbi za kulturno dediščino: učiteljevo razumevanje in implementacija pri pouku likovne dejavnosti

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ROBERT POTOČNIK

Učitelji pouka likovne dejavnosti v osnovni šoli v Sloveniji (na razredni stopnji učitelji razrednega pouka in na predmetni stopnji likovni pedagogi) igrajo pomembno vlogo pri načrtovanju in izvajanju likovnih nalog z vsebinami skrbi za kulturno dediščino. S temi dejavnostmi lahko ozaveščajo o pomenu kulturne dediščine in krepijo nacionalno kulturno identiteto. Učence bi morali usmerjati, da v prihodnosti postanejo aktivni in odgovorni državljani, ki so sposobni razumeti težave ter izražati svojo občutljivost in spoštovanje do kulturne dediščine pa tudi skrbi zanje. Glavni namen prispevka je ugotoviti učiteljevo razumevanje posebnosti skrbi za arhitekturno dediščino na slovenskem podeželju in implementacijo teh vsebin pri pouku likovne dejavnosti v osnovni šoli. V raziskavi je sodelovalo 125 slovenskih učiteljev. Poudarjena so nekatera razumevanja glede težav s skrbjo za kulturno dediščino na slovenskem podeželju pa tudi zadostno zavedanje pomena implementacije problematike skrbi za kulturno dediščino v okviru likovnih dejavnosti skladno s sodobnimi smernicami. Večji poudarek je treba nameniti usposabljanju učiteljev o skrbi za kulturno dediščino ter oblikovanju didaktičnih gradiv s ciljem ozaveščanja učencev o pozitivnem in odgovornem odnosu do skrbi za kulturno dediščino. Več vsebin o skrbi za kulturno dediščino je treba vključiti tudi v izobraževanje bodočih učiteljev in učiteljev v praksi s ciljem razvijanja kompetenc za vključevanje omenjene problematike v njihovo poučevanje.

**Ključne besede:** pouk likovne dejavnosti, ozaveščanje o skrbi za kulturno dediščino, skrb za arhitekturno dediščino slovenskega podeželja, učiteljevo razumevanje in implementacija vsebin

## Introduction

Organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Centre for the Study of the Conservation and Restoration of Cultural Property (ICCROM) and others raise the awareness of pupils of the importance of the care of cultural heritage through their programmes (Aslan & Ardemagni, 2006; Potočnik, 2018). To encourage pupils' participation and involvement, a comprehensive heritage preservation education programme should be established, beginning with primary school pupils (ICOMOS, 1987). The American National Council for Preservation Education (1987) launched guidelines for the inclusion of content about the preservation of cultural heritage in primary and secondary schools. The Slovenian National Programme for Culture (2013) states that the contents on heritage preservation need to be incorporated into all levels of the education system. For visual arts education, some specific learning goals for the integration of the contents of preservation education were designed, in accordance with the national curriculum for visual arts education (Potočnik, 2018). In the national visual art curriculum (Kocjančič, 2011), particular attention is devoted to preservation concerns regarding cultural heritage, which considers three main aspects: architecture heritage, landscape heritage, and fine art heritage – mostly paintings and sculptures.

In the present study, visual arts teachers were asked to present their views on some specific problems concerning the preservation of architecture in the Slovenian countryside and the implementation of heritage preservation concepts (which includes architectural, landscape and fine arts aspects) in visual arts teaching. In recent times, the Slovenian countryside has undergone a considerable change. Identified by researchers, architectural heritage has been inappropriately renovated or replaced by contemporary architecture, which does not take into account the existing architectural heritage; furthermore, it degrades the identity of the Slovenian countryside (Deu, 2009). Experts emphasise that the key lies in education – to date, not enough attention has been paid in the Slovenian school environment to the preservation of architecture in the Slovenian countryside or preservation education in general (Černivec, 2010; Tomšič Amon, 2013). The present research is therefore focused on recognising teachers' preconceptions concerning the preservation of architecture in the Slovenian countryside and the implementation of heritage preservation concepts (which include architectural, landscape, and fine arts aspects) in visual arts teaching, which leads us to compare the results with the current guidelines of preservation education (Potočnik, 2018).

## Theoretical Background

### *Comparison between the situation in Slovenia and abroad*

In the Slovenian primary school education system, visual arts education develops an understanding of visual culture, which includes recognising and understanding problems in the environment and considering care for the cultural heritage. Visual arts activities on the primary level (pupils from 6 to 10 years of age) are implemented by primary school teachers, pupils from 11 to 14 years of age are taught by the visual art teachers. Through visual arts experience, pupils can raise awareness and build responsible attitudes in the context of recognising the specific needs of the cultural identity in the Slovenian countryside (Potočnik, 2017a). Visual arts education remains a fundamental subject for raising awareness among pupils about the professions that are responsible for heritage preservation (Potočnik, 2018).

Concepts of heritage preservation education can be found in the visual arts curricula of other countries. Finland's national curriculum emphasises learning about the specifics of architectural heritage and cultural landscape (National core curriculum for basic education, 2004). In the Italian curriculum for the pre-school period and the first five grades of primary school (*Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione*, 2012), much attention is devoted to the creation of appropriate and critical attitudes to cultural heritage with the aim of recognising and respecting it. However, there is no independent school subject designed for this purpose in any nation's school curriculum (Estepa Gimenez, Ruiz, & Ferreras Listan, 2008). Research (Thornton, 2008) has shown that the contents of heritage preservation education can be reasonably incorporated into various subjects (social sciences, history, national and foreign languages, fine art, music, natural sciences, and mathematics). Research (Estepa Gimenez, Ruiz, & Ferreras Listan, 2008) conducted among primary and secondary school teachers regarding the inclusion of problems of heritage preservation education shows that teachers who overcome predominating tendencies in thinking and the obstacles associated with concepts consider teacher training to be the key element in doing so.

The school curriculum in some countries has changed through having local cultural heritage embedded within it (Kokko & Räisänen, 2019; Martínez Rodríguez & Fontal Merillas, 2020), while simultaneously accommodating many other aspects of the subjects, such as visual arts or science (Angel, Eckford, & Lowery, 2017). An analysis of textbooks in the Slovenian educational system has shown that local cultural heritage is poorly or insufficiently represented (Kukanja & Gabrijelčič, 2008). Potočnik (2017) concluded that primary

school teachers and fine art teachers are favourably inclined towards content related to heritage preservation education; however, they very rarely include this content in their visual arts classes. Other than presenting forms of different kinds of cultural heritage, teachers often do not provide information on suitable and unsuitable interventions in architectural heritage or cultural landscape (Gaskell & Owen, 2005) or on original materials and their uniqueness (Stanley-Price & King, 2009), or on professional services (conservators), on legislation, and on the obligations and rights to cultural heritage (Jokilehto, 2005).

### *Opportunities for heritage preservation education in Slovenian primary schools today*

Heritage preservation education concepts for primary school visual arts activities in Slovenia can be presented through recommended content designed to combine the goals of the national visual arts curriculum and the contemporary guidelines of preservation education contents (Potočnik, 2018). In the first three-year period of primary school (pupils aged 6 to 8-years), teachers provide information on cultural heritage, present the differences between natural and cultural heritage, natural and cultural landscape and immovable and movable heritage. In architecture, teachers can teach pupils about the first homes (caves) as the first original type of natural shelter, the first buildings and construction materials: soil (clay), wood, stone, straw, baked clay (bricks) (Juvanec, 2006). In this period, teachers should guide pupils to observe their local area and to find local examples of architectural heritage (e.g., in churches, chapels, city squares, homes). In particular, teachers should focus the attention of pupils to observing deteriorating architectural heritage and recognising the importance of a responsible attitude of both the owner and society as a whole towards it and finding simple solutions for the re-use of a particular architectural heritage unit. By introducing pupils to the origins of various materials and to various simple application methods, teachers raise awareness in their pupils about the different materials used in architecture preservation. By teaching them about the transience of such materials, pupils are taught about the importance of their preservation. During the first three-year period, pupils should visit various institutions in charge of the preservation of cultural heritage and learn the basics of heritage concern through various didactic aids.

During the second three-year period of primary school (pupils aged 9 to 11 years) (Potočnik, 2018), teachers can shed light on man-made visual arts creations and provide an in-depth insight into materials, preparation, creation methods, and types of uses. In architecture, pupils learn about the development of space in a house (homestead), in rural and urban environments (Juvanec,

2006). In this period, teachers encourage pupils to make in-depth comparisons between traditional and contemporary architectural materials, identify opportunities and basic differences enabled by both groups of materials. Pupils should visit institutions in charge of the preservation of cultural heritage and become familiar with the following professions: conservator-restorer, conservator-architect, conservator-landscape architect, and related professions. By creating a visual arts work from traditional materials, they become familiar with them and thus develop a sense of responsibility towards architectural preservation.

In the third three-year period of primary school (pupils aged 12 to 14 years) (Potočnik, 2018), teachers can shed light on conservation practices both locally and abroad (Dvořák, 1916; Jokilehto, 1999). By applying contemporary visual arts practices (performances, textual art, landscape art, installations, etc.), pupils can learn about the preservation of architectural heritage. In architecture, pupils are taught to distinguish between secular (rural, town/city and market-town buildings) and sacred (churches, chapels, plague columns) and secular-sacred (monasteries, presbyteries) heritage; they can distinguish between various types of use: residential or non-residential, changes to the intended use of a facility, describe roofs, builders' joinery, materials, details, and other features used in architectural heritage and compare them to contemporary architecture. Pupils can also become familiar with various cultural landscapes and their distinct architectural heritage, significant differences and specific origins (such as the Bovec House, the Carinthian House, etc.). They use photographs to identify new buildings that match the identity of a specific example of the Slovenian countryside and to describe their characteristics. Teachers can also encourage pupils to observe appropriate and inappropriate interventions in architectural heritage both locally and elsewhere (materials used in restoration procedures, the stylistic configuration of details, increasing apertures, replacing builders' joinery, colours of the façades, additions to facilities, size of facilities, the impact of architecture on the environment subject to existing architecture or distinct cultural landscape, etc.). Illustrations of architectural heritage allow pupils to identify man-adapted measures and ratios (symmetry, rhythm, the Golden Ratio). Photographs of the Slovenian countryside can serve to compare new buildings that match the existing identity of the cultural landscape and establish inappropriate characteristics of new buildings (such as oversized dimensions, imbalanced aperture ratios, inappropriate façade paint, decorative memorials, materials, etc.). In terms of visual arts tasks, they can plan changes to the existing local architecture: reconstructing existing single-family houses ('cubes') into buildings that match the identity of the Slovenian countryside or urban environment (Ivanič, 2012),



renovating architectural heritage in compliance with contemporary needs, exploring changes to the landscape and architecture by utilising past resources and by documenting the current state. During regular classes, elective subjects, on cultural and technical days, in visual arts afternoon class, and similar, pupils should visit institutions in charge of cultural heritage preservation. They should also become familiar with secondary school and tertiary study programmes for professions engaged in cultural heritage preservation.

In order to unify the understanding of concepts regarding the preservation of architecture in the Slovenian countryside used in this paper, we present, in brief, the primary problems. The Slovenian countryside is distinguished by its transformed natural features and in the historical development of a network of characteristically built structures, consisting of smaller settlements and a different number of independently standing buildings (Deu, 2004). The common rural identity architecture (functional architecture adapted to natural conditions, way of life, cultural influence) is nowadays drowning in a flood of pan-Slovenian and pan-European urban and building features. New buildings are not taking into account the identity of existing built structures, nor the urban and architectural traditions of local construction. (Deu, 2009). National building legislation takes into account the directions of the sustainable development of Slovenian rural areas and the protection of the cultural diversity of the area. However, unfortunately, the lack of control over construction regulations, inefficient punishment of offenders, lack of qualified experts and low awareness among the population (low level of culture of living) results in the erosion of the identity of the Slovenian countryside (Deu, 2004, 2009). The main issues of interventions in the Slovenian countryside architectural heritage can generally be defined: firstly, by a lack of knowledge (Deu, 2004, 2009) or the purposeful neglect by the owner (Fakin Bajec, 2011). Improper intervention can be made in residential heritage countryside housing by overextending it (by adding extra spaces or floors), inappropriate reduction of or extra doors and windows or similar, which ultimately lead to a less harmonic appearance (Deu, 2009). Problems in the Slovenian countryside from contemporary architecture are mostly large-scale residential buildings with different shapes, unusual colour of tiles, facades, interspersed with balustrades and other decorative adornments, which stand out with their appearance, or universal prefabricated houses (Deu, 2004, 2009; Ivanič, 2012).

Pre-service primary school teachers are not familiarised with contents about heritage preservation in general or architecture preservation directly. Indirectly, they can be informed about architecture and cultural heritage through the course *visual arts*, or some other social courses, such as *society and the*

*environment or cultural heritage of the Slovenian people* (Presentation book, primary school study programme, 2018). Pre-service visual arts teachers can select a course comprising contents about architecture in general (they design sketches, models, and draws plans for architecture and other) which does not include concepts of preservation heritage in general (Presentation book, visual arts study programme, 2018). The analysis of the pre-service teachers' study programmes shows that pre-service teachers are not exposed to courses in which they can develop their knowledge about preservation.

### ***Research problem and research question***

The main purpose of the present paper is to identify the preconceptions of in-service teachers of visual arts education (implemented at the primary level by primary school teachers and at secondary level by visual arts teachers) about the preservation of architecture in the Slovenian countryside and implementation of these issues in visual arts teaching. The identification of teachers' preconceptions' will aid in understanding their needs for improvement of preservation concepts in visual arts classes.

In this study, we focused on the following research questions:

1. Which preconceptions of in-service teachers about the preservation of architecture in the Slovenian countryside could lead to improvements in the inclusion of preservation education concepts in visual arts classes?
2. Which preconceptions of preservation education about the implementation of these issues in visual arts activities could lead to improvements?

## **Method**

In this study, a non-experimental and cross-sectional method was used. With the method of free association (Kris, 1992; Sato & James, 1999), primary school and visual arts teachers' **preconceptions about the preservation of architecture** in the Slovenian countryside were determined. The method of content analysis (Busch, 2012) of teachers' answers to open-ended questions was used for determining the significance of the implementation concern for the **preservation of architecture** in the Slovenian countryside, in fine art lessons.

## **Participants**

A random sample included 125 teachers, 77 (61.6%) of whom were primary school teachers, and 48 (38.4%) were fine art teachers at lower secondary school. Among the respondents, the average age was 42.9 years ( $SD = 9.1$  years)

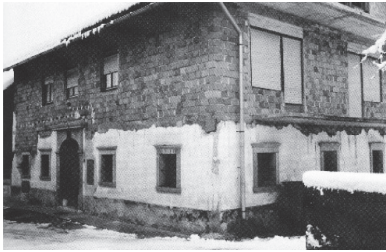
and ranged between 25 and 61 years. Visual arts activities from the 1<sup>st</sup> to the 5<sup>th</sup> grades at primary school (pupils from 6 to 10 years of age) are implemented by primary school teachers (graduates of a faculty of education, majoring in primary school education). The 6<sup>th</sup> to the 9<sup>th</sup> grades (pupils from 11 to 14 years of age) are taught by the visual arts teachers (graduates of a faculty of education, majoring in visual arts education and graduates of an academy of fine arts majoring in painting or sculpture).

### **Instrument**

A paper-pencil instrument was used to determine teachers' preconceptions. Four different photographs were used, which represent the main problems associated with the preservation of architecture in the Slovenian countryside (Figure 1). Picture 1 represents the owner's lack of knowledge (Deu, 2004, 2009) or purposeful neglect (Fakin Bajec, 2011) with improper intervention (in this case, upgrading the floor above the residential building). Picture 2 presents inappropriate contemporary architecture, represented by a large-scale residential building with different shapes, unusual colour of tiles, facade, interspersed with balustrades and other decorative adornments, which stand out in their appearance (Deu, 2004, 2009). Picture 3 presents appropriate renovation of residential architecture in the countryside, which preserves the external identity, but inside includes all the necessary contemporary conditions of a modern home (Deu, 2004, 2009). Picture 4 represents a countryside area of Slovenia (Štanjel), which is protected as a cultural monument. It can be seen that the preservation of the architectural identity is reflected through the unity or contrasts of the buildings with their size, colour or other features. (Potočnik, 2018).

Teachers were asked to write at least five words under each photo 'whatever comes to their mind – expressing their thoughts, feelings, sensations, memories, wishes and others' (Kris, 1992, p. 212). To determine more information regarding the teachers' preconceptions, an open-ended question: 'What do you think about the preservation of architecture in the Slovenian countryside in general?' was used. To determine the significance of the implementation of this issue in fine art lessons, an open-ended question was used: 'What do you think about the implementation of these issues into visual arts teaching?'

Write at least five associations (words or sentences) into the space below each photograph, describing the link between the photograph and the term 'preservation of architecture in the Slovenian countryside'.



Picture 1



Picture 2



Picture 3



Picture 4

Please express your opinion in the space below. What do you think about the preservation of architecture in the Slovenian countryside in general?

Please express your opinion in the space below. What do you think about the implementation of these issues into visual arts teaching?

*Figure 1:* Questionnaire to determine preconceptions among primary and visual arts teachers about the preservation of architecture in the Slovenian countryside and the implementation of these issues in visual arts teaching.

### Research design

We determined teachers' differences in preconceptions with the paper-pencil instrument. The random sample included primary schools from all regional units of the Institute of Education of the Republic of Slovenia.

Headmasters were asked for consent before the survey was carried out. The questionnaires were sent by regular post. A return postage-paid envelope was also enclosed. Of the total 195 questionnaires sent to the teachers, we received 125 (64%) completed, which is considered to be a good response (Babby, 1998).

In the analysis of free associations, we selected a quantitative approach of content analyses (Sagadin, 1993). Transcriptions of responses were the basis for identifying the main categories, on which basis a coding scheme was developed. In the transcription, codes were identified according to the developed coding scheme and then categorised into specific categories. In each category, the answers were counted and numbered in tables. At the occurrence of a large number of preconceptions that had a low frequency but consisting of a more general (superior) association with high frequency, we combined the associations (Flogaitis & Angelidou, 2003). If the association appeared at least twice, we included it in the list. The differences in the relative frequencies of specific categories of associations between primary school teachers and fine art teachers were calculated.

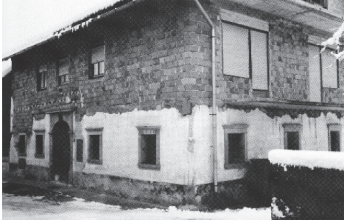

To determine the information regarding teachers' preconceptions among primary and visual arts teachers about the preservation of architecture in the Slovenian countryside and the implementation of these issues in visual arts teaching, **open-ended questions were designed. In total, we received answers from 29 teachers (23.2% of all participants), of which 13 were primary school teachers (17.3%), and 16 were visual arts teachers (37.8%). All 29 respondents replied to both open-ended questions.**

## Results

To determine teachers' preconceptions about preservation of architecture in the Slovenian countryside, **we first of all used four different photos (Picture 1, 2, 3, 4) representing issues associated with the preservation (Figure 1). Teachers were asked to list a number of associations for each photo. We present the teachers' preconceptions in Table 1.**

Table 1

*Primary school and visual arts teachers' preconceptions about preservation of architecture in the Slovenian countryside*

	Primary School Teacher (77)*		Visual Arts Teacher (48)*		Dif.
	f	f%	f	f%	f%
 <p><b>Picture 1:</b> Intervention in architectural heritage (Deu, 2004, 2009). (Photo: archive of Živa Deu)</p>					
<b>Negative responses to intervention</b>	127	165	95	198	33
Inconsistency, destruction (inadequate, inappropriate), poor aesthetic (ugly, disturbing, negligent), degradation (without identity, truncation), inspection (control, punishment, sanctions, illegal building) and similar.					
<b>Responses about preservation of architectural heritage in general</b>	52	67	37	78	11
Renovation, adaptation, conservation, building heritage, degradation, monument protection and similar.					
 <p><b>Picture 2:</b> Contemporary architecture in the Slovenian countryside (Deu, 2004, 2009). (Photo: www.dnevnik.si)</p>					
<b>Negative responses to the preservation of the Slovenian countryside</b>	108	140	67	148	8
Unsuitable colour (aggressive, screaming, intrusive facade paint), disparity with the surroundings (landscape, existing architecture), outstanding/striking, poor legislation, inefficiency of professional services, sanctions, lack of taste, poor aesthetic, and others.					
<b>Positive or neutral responses to the contemporary residential building in the Slovenian countryside</b>	24	31	11	23	8
Old - new / combination of old and new architecture, orderly, in accordance with the surroundings (landscape, existing architecture), beautiful house, and others.					



**Picture 3:** Intervention in architectural heritage (Deu, 2004, 2009).

<b>Positive responses to preservation of architecture in the Slovenian countryside</b>	103	134	90	178	53
Renovated house, architectural heritage preservation, well-arranged / beautiful house, sample example of suitable intervention / aggregation of old and new / successful replacement of worn-out materials with new ones that follow tradition, cooperation with experts, appropriate plaster and other.					
<b>General architectural associations</b>	75	97	44	92	5
Old (rustic) house, house consistent with the landscape / environment, traditional construction (design, architecture), shutters, proportions, symmetry of the building (windows, entrance) and other.					
<b>Associations related to emotions and nostalgia</b>	16	21	7	15	6
Hominess, warmth at home, family, tranquillity, memory of old times and other.					



**Picture 4:** Preservation of architecture in the Slovenian countryside, which is protected as a cultural monument (Deu, 2004, 2009). (Photo: [www.gore-ljudje.net](http://www.gore-ljudje.net))

<b>Associations related to the preservation of countryside and architecture</b>	96	125	68	142	17
Preserving the appearance (initially, without modernisation, unity), coexistence with the environment / given geographical features / nature (coherence, connectivity), unity of construction and materials (stone, roof coverings, white facade), legislation (uniform construction, protection of the environment, control), typical architecture (traditional construction), architectural heritage (building heritage), renovation, architectural monument, settlement with recognisable identity, awareness of people, and others.					
<b>General associations of countryside and architecture</b>	56	73	41	85	12
A compact, clustered village, village, square, landscape, urbanism, architecture, church, castle, walls, landscape architecture, and other.					
<b>Associations related to emotions and nostalgia</b>	15	19	13	27	8
Nice, idyllic, peace, hominess, warmth and other.					

*Note.* \* = number of teachers that participated in research, f = number of concepts (associations) that teachers wrote under the specific photograph and fall into the same category, % = relative frequencies of associations in specific category, Dif. = differences in relative frequencies of specific category of associations between primary school teachers and fine art teachers

## **Intervention in architectural heritage (associations under Picture 1)**

### *Negative response to intervention*

It can be summarised from Table 1 that visual arts teachers expressed 33% more associations in the category of negative responses to intervention in architectural heritage (Picture 1) than the primary school teachers did. In general, teachers show critical attitudes towards inappropriate interventions and stated terms including 'inconsistency', 'destruction (inadequate, inappropriate)', poor aesthetic (ugly, disturbing, negligent), 'degradation' (without identity, truncation), 'inspection' (control, punishment, sanctions, illegal building) and others.

### *Responses about the preservation of architecture heritage in general*

The second most commonly mentioned group represents the preconceptions related to the response about the preservation of architecture heritage in general. Most frequently, we perceived terms such as 'renovation', 'adaptation', 'conservation', 'building heritage', 'degradation', and 'monument protection'. The differences between primary school teachers and visual arts teachers about using general architectural preconceptions of the preservation of cultural heritage are rather low; 11% more associations were listed by the visual arts teachers.

Considering presented guidelines for the inclusion of heritage education concepts in visual arts activities (Potočnik, 2018) and results obtained by the analysis of teachers' answers, it can be summarised that teachers could pay more attention to deepen their knowledge regarding concepts connected with traditional building materials and authenticity of preservation materials.

## **Contemporary architecture in the Slovenian countryside (associations under Picture 2)**

### *Negative responses to the preservation of the Slovenian countryside*

It can be summarised from Table 1 that teachers recognise issues regarding a residential building in the countryside, which stands out with inappropriate dimensions and the colour of the facade. Most often, teachers indicated terms that reflected a negative response to the displayed architecture in the countryside. Differences between negative responses regarding the preservation of the Slovenian countryside are rather low: 8% more associations were listed by the visual arts teachers. Teachers most often reported associations under the presented photograph, which indicate unsuitable colour (aggressive, screaming, intrusive facade paint), disparity with the surroundings (landscape,



existing architecture), outstanding / striking, poor legislation, inefficiency of professional services, sanctions, lack of taste, poor aesthetic, and similar.

### *Positive or neutral responses to the contemporary residential building in the Slovenian countryside*

In addition, teachers were positive or neutral to the photograph of a residential building in the countryside, which stands out with inappropriate dimensions and the colour of the facade. Differences in relative frequencies are higher by 8% among primary school teachers. Most often, they recorded associations such as 'old-new / combination of old and new architecture', 'orderly', 'in accordance with the surroundings (landscape, existing architecture)', 'beautiful house' and similar.

Taking into account the guidelines for the inclusion of heritage education concepts in visual arts activities presented by Potočnik (2018), teachers should deepen their knowledge regarding concepts of the comparison of traditional architecture (adapted measures and ratios - symmetry, rhythm, the Golden Ratio, etc.) with some characteristics of new buildings, such as oversized dimensions, imbalanced aperture ratio, and similar features.

### **Intervention in architectural heritage (associations under Picture 3)**

#### *Positive responses to preservation of architecture in the Slovenian countryside*

Table 1 summarises the concepts of teachers on the appropriate intervention in the architectural heritage. Differences in relative frequencies between primary school teachers and visual arts teachers are highest (53%) in the recorded number of concepts (associations) in this study. Most often, the teachers listed terms such as 'renovated house', 'architectural heritage preservation', 'well-arranged/beautiful house', 'example of suitable intervention / aggregation of old and new/successful replacement of worn-out materials with new ones that follow tradition', 'cooperation with experts', 'appropriate plaster' and similar.

#### *General architectural associations*

According to associations appearing under Picture 3, we were able to determine a second category that contains general architectural **preconceptions**. Regarding the appearance of preconceptions, differences between primary school and visual arts teachers are rather low (5%). Teachers using terms like

'old (rustic) house', 'house consistent with the landscape / environment', 'traditional construction (design, architecture)', 'shutters', 'proportions', 'symmetry of the building (windows, entrance)' and similar.

*Associations related to emotions and nostalgia*

We also perceived terms that describe **preconceptions related to emotions and nostalgia**, which caused us to determine a third category. Regarding the appearance of preconceptions, differences between primary school and visual arts teachers are rather low (6%). Teachers used terms like 'hominess', 'warmth at home', 'family', 'tranquillity', 'memory of old times' and similar.

As Potočnik (2018) suggested in his guidelines for the inclusion of heritage education concepts in visual arts activities, teachers should think about concepts of re-use of particular architectural heritage unit, preservation of architectural heritage in compliance with contemporary needs and the possibilities of professional services of preservation care.

**Preservation of architecture in the Slovenian countryside,  
which is protected as a cultural monument  
(associations under Picture 4)**

*Associations related to the presented cultural countryside and the preservation of the architectural heritage*

Table 1 summarises the associations of teachers on the preservation of the cultural landscape. Differences in relative frequencies (17%) were detected among fine art teachers. Most often, teachers mentioned the preconceptions that reflected the presented cultural landscape, concepts of preserving their appearance, coexistence with the environment, given geographical features, and unity in construction.

*General associations of countryside and architecture*

In the following, we combined concepts describing the general preconceptions of the landscape and architecture, such as a compact, clustered settlement, architectural heritage, etc., into an independent category. Among fine art teachers, we found 12% more differences in relative frequencies in comparison to primary school teachers.

*Associations related to emotions and nostalgia*

The third category is represented by concepts related to emotions and nostalgia, such as beautiful, idyll, peace, hominess and warmth. Among visual

arts teachers, we found 8% more differences in relative frequencies in comparison to primary school teachers.

Summarising teachers' aspects obtained by the instrument used in this study and considering guidelines for the inclusion of heritage education concepts in visual arts activities (Potočnik, 2018), it can be concluded that teachers should also understand concepts of legislation, institutions in charge of conserving and protecting cultural heritage and become familiar with the following professions: conservator-restorer, conservator-architect, conservator-landscape architect, etc.

The second part of the results deals with teachers' preconceptions about the preservation of architecture in the Slovenian countryside, determined by the two open-ended questions, 'What do you think about the preservation of architecture in the Slovenian countryside in general?' and 'What do you think about the implementation of preservation heritage issues into visual arts teaching?' (Figure 1). Qualitative results obtained from the analysis of teachers' responses (29 teachers (23.2% of all participants), of which 13 were primary school teachers (17.3%), and 16 were fine art teachers (37.8%)) are presented in Table 2 and Table 3.

Table 2

*Preconceptions of primary school teachers and visual arts teachers on the open-ended question about the implementation of preservation heritage issues into visual arts teaching*

Primary School Teacher	Visual Arts Teacher
<i>Causes / consequences / condition in general</i>	
<ul style="list-style-type: none"> <li>- We do not do enough for the architectural heritage of the Slovenian countryside of architecture in the Slovenian countryside in general.</li> <li>- Can we compare the cultural landscape in the countryside with us and in England - we are carrying out a 'terror of heritage'.</li> <li>- Preservation of the architectural heritage is a great cost, so it is not accessible to everyone.</li> </ul>	<ul style="list-style-type: none"> <li>- Preserving the architectural heritage of the countryside is in a shameful state.</li> <li>- In the past (even today) countless old houses, farms and other buildings were destroyed.</li> <li>- I support changes in the future of this issue in all levels of society.</li> <li>- There is not much hope in Slovenian society for a better future concerning the issues of the preservation of cultural heritage - awareness of people is too low.</li> </ul>

Primary School Teacher	Visual Arts Teacher
<i>Legislation issues</i>	
<ul style="list-style-type: none"> <li>- The system fails in achieving the visions of the preservation cultural landscape, starting from municipal levels.</li> <li>- The various institutions do not have sufficient controls (in the case of issuing building permits, utility permits, etc.).</li> <li>- State should introduce a state-owned property privatisation, for those who do not care for properties and sell to persons with responsible attitude.</li> <li>- Already a lot of cultural heritage is protected (by law) - we should limit it, and for that be more responsible for its care.</li> <li>- Destruction of cultural heritage should be penalised.</li> </ul>	<ul style="list-style-type: none"> <li>- There are not enough funds from the state (institutions), so cultural heritage is not maintained, or it is destroyed.</li> <li>- Construction of turnkey houses in the countryside (which do not follow the identity of the surrounding area) should be prohibited.</li> </ul>

## **Preconceptions about the preservation of the of architecture in the Slovenian countryside**

### *Causes, consequences, and condition*

It can be summarised from Table 2 that primary school teachers and visual arts teachers' preconceptions about the preservation of architecture in the Slovenian countryside are similar. Both groups recorded negative conditions in the countryside. Preconceptions include society not doing enough to face these problems in general, the awareness of people being low, and most of the damage has already been done.

### *Legislation issues*

Statements between primary school teachers and visual arts teachers concerning legislation issues are more critical among primary school teachers. Regarding the poor condition of cultural heritage, primary school teachers see the reasons among preservation services which are inefficient, poor legislation and irresponsibility of owners. Visual arts teachers see problems in financing the preservation of the cultural heritage and insufficient legislation for contemporary architecture in the cultural landscape of the Slovenian countryside.

However, the analysis of teachers' answers to the second questions regarding general preconceptions about the preservation of architecture in the Slovenian countryside showed similar aspects as presented above. As suggested by Potočnik (2018), teachers should pay more attention to good practises from the pupils' living environment: the preservation of architecture in the Slovenian countryside and contemporary architecture's specific origins.

Table 3

*Preconceptions of teachers to an open-ended question about the implementation of the preservation heritage issues into visual arts teaching*

Primary School Teacher	Visual Arts Teacher
<b><i>The role of the teacher</i></b>	
<ul style="list-style-type: none"> <li>- As an adult, gives students an example.</li> <li>- Strengthens respect for the heritage and the elderly.</li> <li>- Sharing the awareness of caring for architectural heritage.</li> <li>- Plays an important role in raising the awareness towards care of cultural heritage in all areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Encourages students to think that they need to protect, respect.</li> <li>- Raises awareness among students to learn about the problems of care for local architectural heritage and wider.</li> </ul>
<b><i>Personal attitude</i></b>	
<ul style="list-style-type: none"> <li>- I am inclined to integrate contents.</li> <li>- I include content in classes.</li> </ul>	<ul style="list-style-type: none"> <li>- We do not include enough contents in the lesson.</li> <li>- It is so important to include problems of architectural heritage.</li> </ul>
<b><i>Teacher training</i></b>	
<ul style="list-style-type: none"> <li>- We need additional training.</li> </ul>	<ul style="list-style-type: none"> <li>- We have sufficient knowledge to handle all content.</li> </ul>
<b><i>Role of media, family</i></b>	
<ul style="list-style-type: none"> <li>- The society / media / family teach children the wrong (material) values.</li> </ul>	<ul style="list-style-type: none"> <li>- The role of the media is too weak (do not report enough on the problems).</li> </ul>
<b><i>Preserving national identity, human values</i></b>	
/	<ul style="list-style-type: none"> <li>- Young people are strengthened in the awareness of their own values within the framework of the identity of the nation, so they will be able to gain an equal position within other nations.</li> <li>- With the care of cultural heritage (architectural, countryside), we take care of affiliation / value in our place.</li> <li>- With preservation of cultural heritage (architectural, countryside), we preserve the identity of the people.</li> <li>- We do not care enough about heritage (architectural, countryside); therefore, the identity of the people is lost.</li> <li>- We don't take pride in belonging to our nation - we take everything that is foreign, and we do not value our own.</li> <li>- We manage to destroy everything that marks us as a nation (architecture, countryside).</li> <li>- By preserving cultural heritage (architecture, countryside), we preserve human values.</li> <li>- We are burdened with material goods, displaying prosperity, and everything that is old is considered to be humiliating, unworthy.</li> <li>- Constant chasing after the new requires the destruction of the old.</li> </ul>

## **Preconceptions of teachers to an open-ended question about the implementation of preservation heritage issues into visual arts teaching**

### *The role of the teacher*

It can be summarised from Table 3 that comparisons concerning teachers' role in preservation education are similar among primary school and visual arts teachers. Teachers play an important role in raising awareness about the preservation of cultural heritage among pupils. Teachers are examples.

### *Personal attitude*

Some teachers express personal statements about the inclusion of preservation topics in visual arts lessons. There are no differences in personal attitudes about the inclusion of preservation issues between primary school and visual arts teachers.

### *Teacher training*

In the conceptions regarding teaching training, differences appeared. Primary school teachers expressed a need for training, but visual arts teachers stated that they have sufficient knowledge to handle all content.

### *The role of media and family*

Primary school teachers spoke of the problems of society, which focuses on consumerism, and this has consequences among pupils. In contrast, visual arts teachers cited the problems of media, which do not sufficiently report the issues concerning the preservation of the architectural heritage of the Slovenian countryside.

### *Role of inclusion of contents - preserving national identity and human values*

Only visual arts teachers expressed personal opinions of the significance of dealing with the preservation problems indirectly preserving national identity and human values. They stated that pupils' knowledge of their roots can help them have an equal position among other nations, preserve the identity of our nation and similar. In contrast, visual arts teachers expressed that our national identity is lost among globalisation trends and the lack of a sense of belonging to the nation. Visual arts teachers also expressed conceptions that dealing with preservation issues can influence students' attitudes concerning human values.

## Discussion

The first research question relates to the *preconceptions of in-service teachers about the preservation of architecture in the Slovenian countryside could lead to improvements in inclusion preservation education concepts in visual arts classes*. The research shows that teachers recognise inappropriate renovations of architectural heritage in the context of the preservation of the cultural heritage of the Slovenian countryside. Visual arts teachers expressed associations that are more negative. In general, teachers show critical attitudes towards inappropriate interventions in architectural heritage. The research also shows that visual arts teachers use professional terminology more often, but great differences are not detected. Teachers also reported a negative response to inappropriate contemporary architecture, which stands out in its dimensions and the colour of the facade. Differences between negative responses regarding the preservation of the cultural landscape among primary school and visual arts teachers are not great. The research also showed that positive or neutral responses to the inappropriate residential buildings in the Slovenian countryside are also stated by the teachers.

Deu concluded (Petančič, 2011) that the Slovenian culture of living is at a very low level: the general population is environmentally urbanistic and architecturally very uneducated, which can also be seen among conceptions detected in this study.

Teachers responded positively to the preservation of architectural heritage (associations under Picture 3). In this study, the biggest differences in the number of associations were detected among visual arts teachers, regarding positive responses to the proper preservation of the architectural heritage. Differences among participants regarding using general vocabulary are not detectable. The displayed images of the proper preservation of architectural heritage and cultural landscape resulted in a record of terms related to emotions and nostalgia between primary school and visual arts teachers. A romantic nostalgic attitude to cultural heritage is most common, perceived in the form of enthusiasm, usually accompanied by incompetence. This appears in the fields of education and tourism, as well as among Slovenia emigrates (Bogataj, 1992).

Teachers, in general, expressed support for the protection of the cultural heritage, especially when concerning the traditional appearance of the countryside (architecture and countryside). Cultural heritage is perceived as a part of our identity. These findings are consistent with a report on heritage research in Ireland (Simpson, 2007), which showed that people's cultural heritage is an important value that they wish to protect. It represents the identity of their nation,

and they are aware of the need for thoughtful preservation of the countryside where it is still possible to find architectural heritage typical of a particular area. Teachers are especially critical about the management of architectural heritage in rural areas or outside city centres, because it is not properly looked after by the owners. They are also critical of new buildings in rural areas that do not take the characteristics of traditional architecture into account and, therefore, spoil the cultural landscape. Research has confirmed the existence of these problems, and they have provided guidelines for their effective solutions (Deu, 2008; Fakin Bajec, 2011; Kalčič, 2003). In general, teachers are critical about the state of architectural heritage and its preservation, especially in the countryside. Living in the countryside and life in the old farmhouse symbolised technological backwardness and cultural underdevelopment; by improving their financial position and favourable credit policy in the 1970s, people began to build residential units that did not reflect the characteristic architectural features (Fakin Bajec, 2011).

In addition, teachers are critical of the services responsible for preservation. In their opinion, they are not doing enough and are not credible because they quickly succumb to various pressures. Research in Slovenia shows that, in addition to poor and ineffective control over the implementation of planned interventions and the same ineffective punishment, significant reasons are also the absence of qualified experts and the low awareness of preservation problems among the population (Deu, 2008).

The need for teachers' improvements of inclusion preservation education concepts in visual arts classes should be focused on acquiring knowledge of concepts connected with traditional building materials and the authenticity of preservation materials, differences between contemporary and heritage buildings, focusing in pupils' local environment, re-use of contemporary architecture, concepts of legislation and institutions in charge of protecting cultural heritage.

The second research question deals with *preconceptions of preservation education about the implementation of these issues in visual arts activities and could lead to improvements*.

It can be concluded that teachers, according to their preconceptions, play a significant role in raising awareness about the preservation education among pupils; this means that a teacher is an example for pupils' experiences of caring about cultural heritage. Teachers with responsible and positive attitudes about the preservation of cultural heritage are examples to every pupil, spreading awareness of the possibilities of revitalising the existing architectural heritage in his setting and beyond, and directing the students to observe their



surroundings and recognise the needs and specificities of the local cultural heritage. Similar conclusions were obtained by Thornton (2008).

Taking into account teachers' preconceptions about the application of the preservation education into the fine art classes, primary school teachers expressed the need for additional training (Table 3). The need for improvement of primary school teachers' knowledge regarding preservation education has already been illustrated in the study by Potočnik, in which it was concluded that primary school teachers need additional help to incorporate preservation content into their teaching within the visual arts curriculum (Potočnik, 2017a). Visual arts teachers expressed that they are sufficiently competent for implementing these contents into their teaching, but primary school teachers would need more in-service education (Potočnik, 2017a). Primary school teachers are seeking educational resources that would help them deal with the problems the preservation of cultural heritage with concrete examples of visual arts tasks (Potočnik, 2017). The general (Simpson, 2007) as well as the professional public (Aslan, 2006; DeTroyer, 2005) support the idea of dealing with the contents of protection of cultural heritage in class. Research shows that in different countries content related to cultural heritage appears in the visual arts curricula, which enables teachers to deal with the topics related to the protection of the cultural heritage (Taggart, 2004). Many education systems rely solely on primary school teachers, regarding the implementation of visual arts activities at the primary level of schooling (Bamford, 2009). Dealing with these issues in class is challenging; during education at university, such contents are limited; consequently, it is not surprising that primary school teachers lack the relevant knowledge and skills. Primary school teachers spoke about the problem of consumerism in society, which has consequences for pupils. In contrast, visual arts teachers cited the problems of media, which do not sufficiently report the problems concerning the preservation of cultural heritage (architecture, countryside). Only visual arts teachers expressed conceptions of the significance of dealing with the preservation of the cultural heritage (architecture, countryside): preserving national identity and human values. Teachers wrote that pupils' knowledge of their roots can help them to have an equal position among other nations, preserve the identity of our nation and similar.

In contrast, teachers expressed that Slovenia's national identity is being lost within globalisation trends and lacking in belonging to the nation. Visual arts teachers also expressed conceptions that dealing with preservation issues can influence a pupil's attitude concerning human values. As Potočnik (2018) suggested in his guidelines for the inclusion of heritage education, concepts in visual arts activities teachers could pay more attention to deepen their

knowledge regarding concepts of legislation, institutions in charge of cultural heritage preservation and become familiar with the following professions: conservator-restorer, conservator-architect, conservator-landscape architect, etc.

## Conclusion

Both primary school teachers and visual arts teachers recognise the main interventions concerning the preservation of architecture in the Slovenian countryside. Teachers agree that preservation issues are relevant and that such contents are needed in the school system (Potočnik, 2017a). Teachers should start from the contents in the curriculum, but when implementing visual arts tasks, they should also include topics concerning the preservation education. With the systematic promotion of critical thinking, permanently raising awareness in pupils about heritage preservation at all stages of the educational process and with planning and implementing visual arts tasks with such contents, teachers can affect the pupils' positive attitude towards cultural heritage preservation (Potočnik, 2018). The research has shown that primary school teachers expressed a need for training. Discussing the contents of cultural heritage, its preservation can result in the formation of social harmonies, the creation of innovations, incentives to political cooperation and development, as well as the exchange of ideas and experience (Alkateb, 2013).

According to the conclusions, some applications for the education process can be suggested. By dealing with the contents of heritage preservation education in visual arts classes and by raising awareness of its meaning, teachers should attempt to value and evaluate the different influences on cultural heritage with pupils. The fact remains that the in-service teachers of visual arts education are left to themselves, according to their abilities, experiences, and beliefs, to choose the issues regarding the preservation education, from rarely accessible literature. The experts of education, and architecture and landscape conservation need to formulate didactic materials for the inclusive issues of preservation education, according to the pupil's development level. More research should be developed in the nature of pupils' understanding of heritage education (level of understanding according to their development, influences of visual culture of perception of space and similar). Particular attention should be given to developing didactic materials for interdisciplinary approaches with other educational subjects at primary level (Pavlin, Vaupotič, & Čepič, 2013; Potočnik & Devetak, 2018). More problems regarding the preservation education should be incorporated into pre-service primary and visual arts teachers' education to develop competences to implement these topics into their teaching.

Some limitations of this study can also be identified, such as the teachers' low response rate to the open-ended questions, so a different type of instrument (e.g., multiple-choice questions) could be applied in future research. Open-ended questions require additional effort from the responder. Through the first question, we were more focused to identify their responses in context of knowledge about issues considering preservation of architecture in the Slovenian countryside. In contrast, participants should present their opinion about these issues answering the second and third questions. Teachers anticipated that they expressed their opinion answering the first question, so they were less motivated to write the answers to these questions. There are no data about what heritage preservation professionals' opinions are about the inclusion of preservation issues into the educational system, so these issues could be addressed in future studies by applying in-depth interviews. It is also essential to emphasise that similar studies ought to be conducted with pre-service teachers, high school teachers, and kindergarten teachers so that a more in-depth picture of preservation education issues could be developed.

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## Biographical note

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## Transnational Mobility of Academics: Some Academic Impacts

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SINTAYEHU KASSAYE ALEMU<sup>1</sup>

∞ This paper deals with the short- and long-term transnational mobility of academics and some of its impacts, an issue not well addressed in the literature. Through a qualitative literature review, the paper aims to answer the question: What are some of the academic impacts of the transnational mobility of academics? Transnational academic mobility is academic travel across borders of states and is one aspect of the new internationalisation of higher education. It is presented in terms of the roles of academics in teaching-learning experiences as well as knowledge production and transfer. The discussion extends to unpacking the impacts of the transnational mobility of academics in relation to institutional affiliation and academic status and profile. These issues are emphasised because they are major academic issues of transnational academics. From these perspectives, mobile academics have gained benefits but sometimes also faced challenges.

**Keywords:** transnational mobility, academics, impacts, knowledge production and transfer, academic status and profile, transnational identity capital

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## Transnacionalna mobilnost akademikov: nekateri akademski učinki

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SINTAYEHU KASSAYE ALEMU

☞ Članek obravnava kratkoročno in dolgoročno transnacionalno mobilnost akademikov in nekatere njene učinke; ta tematika v literaturi ni obravnavava v zadostni meri. S kvalitativnim pregledom literature želimo v članku odgovoriti na vprašanje, kateri so nekateri akademski učinki transnacionalne mobilnosti akademikov. To je prehajanje akademikov prek državnih meja in je eden izmed vidikov nove internacionalizacije visokošolskega izobraževanja. Predstavljena je z vidika vloge akademikov pri poučevanju in pridobivanju učnih izkušenj ter pri ustvarjanju in prenosu znanja. Razprava se razširja na prepoznavanje učinkov transnacionalne mobilnosti akademikov na institucionalno pripadnost, akademski status in profil, kar so osrednja akademska vprašanja, s katerimi se spoprijemajo transnacionalni akademiki. S teh vidikov je mobilnost akademikom koristila, občasno pa so se srečevali tudi z izzivi.

**Ključne besede:** transnacionalna mobilnost, akademiki, učinki, ustvarjanje in prenos znanja, akademski status in profil, transnacionalni identitetni kapital



## Introduction

The aim of this article emanates from the following question: What are some of the academic impacts of the transnational mobility of academics? The objective is therefore to discuss some of the academic impacts of the internationalisation of the academic profession, as represented by academic scholars. On the basis of a qualitative review of the related literature, the paper focuses on such issues as transnational knowledge production and transfer, transnational identity or learning experiences, institutional affiliations, and academic status and profile. These issues are emphasised because they represent the major academic activities and relations of transnational academics and their institutions.

The article is constituted by such concepts as the academic profession, academics, internationalisation, globalisation and transnational mobility, all of which require brief elucidation. According to Kehm and Teichler (2013), the *academic profession*, represented by academics, is an altruistic academic occupation that has strong intellectual content, often leading to distinctive academic outcomes. Moreover, knowledge specialty with high academic qualification, acquired through a high level of practical and intellectual skills coupled with a high standard of ethical behaviour, is an important characteristic of the academic profession. The academic profession is a holding company of academic disciplines. The Merriam-Webster dictionary defines an *academic* as a person who is a teacher in a college or university; a member of an institution of learning who has acquired formal education especially at a college or university. Vabø (2007) defines modern academic professionals as scientific employees at universities and university colleges.

Although the *internationalisation* of higher education is understood differently by different people and has both inward and outward dimensions, Jane Knight (2004) defines it as an inward “process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of post-secondary education”. However, this definition does not explain the outward dimension of the internationalisation of higher education. In terms of its dynamic transformational dimensions of scope, role, actors, concept, activities, aims and rationales, the internationalisation of higher education denotes both inward and outward mobility of people, programmes and providers across institutions, departments, sectors, nations, regions and the globe. The mobility of people, programmes and providers involves students, teachers, institutions, governments, organisations and agencies as actors (Alemu, 2016). From this perspective, the internationalisation of higher education is also understood as “... an approach oriented strategic process of cross-border (departmental,

sector, local, national, institutional, regional, international) mobility, integrity, and interaction of academic people, program, and/or institutions of tertiary education to achieve academic, cultural, economic, social and/or political benefits” (Alemu, 2016, p. 309). *Globalisation*, on the other hand, is a contested and more inclusive ideological formation and social imaginary concept. For the purposes of the present paper, it can be understood as technology-driven and borderless socioeconomic, political and cultural interconnectedness. J. Knight (1999) considers globalisation as “the flow of technology, economy, knowledge, people, value, ideas ... across borders”, affecting countries differently. Her definition reads partly as follows:

Globalization is the flow of technology, economy, knowledge, people, values, ideas [...] across borders. Globalization affects each country in a different way due to a nation’s individual history, traditions, culture and priorities. Internationalization of higher education is one of the ways a country responds to the impact of globalization yet, at the same time respects the individuality of the nation. (Knight, 1999, p. 14)

*Mobility of academics*, which is an aspect of the internationalisation of higher education, can take the form of academics (academics, researchers and students) travelling across borders of states, institutions, systems and disciplines. However, the present paper focuses on the short- and long-term transnational mobility or cross-border mobility of academics and researchers in the realm of the new internationalisation. The transnational mobility and migration of academics is frequently shaped by intellectual periphery/centre relationships rather than merely being directed by purely economic incentives. The direction of academic mobility is significantly vertical; it is from less developed HEIs/states (periphery) to developed states (centres). In other words, the mobility of academics is mainly from peripheries (less developed and furnished HEIs) to centres (well developed and furnished HEIs).

With varying degrees of involvement, most nations experience both an inflow and/or outflow of researchers and academics. In addition to personal gains, it is argued that researchers’ transnational mobility provides potential benefits to higher education institutions of both countries of origin and destination (Hugo, 2009). However, there are also drawbacks. These are often recognised as consequences of the imbalances between outflows and inflows and differences in academic and social cultures. In spite of this, studies analysing the impacts of the transnational mobility of academics are rare.

In addition to personal benefits from economic gains and academic tourism, the transnational mobility of academics has various academic and professional impacts. The impacts of the internationalisation of the academic profession, epitomised by academic scholars, can be discussed in terms of the benefits and challenges of academics in teaching-learning experiences and knowledge production, transfer and commodification. Academic mobility has facilitated collaborative knowledge production, knowledge movement and publication (Hamza, 2010; Krstic, 2012). It also results in the development of personal, professional and international experiences in teaching and research (Hamza, 2010; Sandgren et al., 1999), experiences that exceed the immediate individual, institutional and national contexts (Bedenlier & Zawacki-Richter, 2015).

In recent decades, however, mobile academics have experienced challenges in integrating into foreign academic culture (Power, 1994; Strathern, 2000). In spite of J. Knight's (2004) assumption of "cultural integration" in her definition of internationalisation, mobile academics have continued to be marginalised as strangers, outsiders and minorities (Balasooriya et al., 2014; Kim & Brooks, 2012; Pherali, 2012). For instance, almost all of the vignettes on mobility experiences from the project known as "University in the Knowledge Economy"<sup>2</sup> (UNIKE – in the Initial Training Network (ITN)) confirm that cultural integration is not only difficult but also challenging, often seeming impossible. One of the UNIKE partners (who wishes to remain anonymous) observed and concluded that "foreigners are forever foreign".

Based on panellist<sup>3</sup> responses and a literature review, Bedenlier and Zawacki-Richter (2015) categorised the perceived impacts of transnational academic mobility into individual, institutional and global levels or categories (Table 1).

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2 University in the Knowledge Economy (UNIKE) was a European Commission funded PhD and post-doc research project run by six European universities (2013-2017): Aarhus University (Denmark), University of Ljubljana (Slovenia), University of Porto (Portugal), Leon Research Centre (France), Bristol University and University of Roehampton (UK). See <http://unike.au.dk>.

3 More than 30 panellists from 14 countries of the Western world and Asia responded. Therefore, the voice of Africa is not included. The most serious impact of the internationalisation of higher education on African academics is ethical: unequal arrangements of partnership, the commodification and commercialisation of higher education, the undermining of national academic endeavours, and international mobility that is often accompanied by a brain drain, as well as Western hegemonic perspectives, structures and research priorities. The 14 countries were the USA, the UK, the Netherlands, Australia, Portugal, Canada, Italy, Malaysia, Sri Lanka, Germany, the Republic of Korea, Japan, Ireland, and Hong Kong (Bedenlier & Zawacki-Richter, 2015, p. 6).

Table 1  
*Level-Based Perceived Impacts*

No.	Levels	Perceived impacts
1	Individual Level	Opportunity and need for personal development
		Considering the situation of foreign-born colleagues
		Foreign language acquisition
		Opportunity and need for professional development
		Increased workload and stress factors
	Institutional level	International reputation, promotion and tenure
		Establishing global academic networks/friendship (mine)
		Presence of a more international student body
		Teaching international students
		Need for sensitive behaviour towards international students
2	Institutional level	Internationalisation of the curriculum
		International research teams and publications
		International dissemination and visibility of research results
		Anglo-American hegemony of perspectives and structures
		Economic aspects and funding
	Global Level	Forms of engagement within and beyond one's institution
		Institutional and individual impediments
		English as lingua franca
		Cooperation, interconnectedness and spread of knowledge
		International mobility of faculty
3	Global Level	Policy context and global developments
		Academic competition
		Expansion of perception and perspective
		Application of information and communication technology
		Heterogenisation and pluralisation
		Responding to future challenges

*Note.* Adapted from Bedenlier & Zawacki-Richter, 2015, pp. 7-10.

In Table 1, individual impacts are most closely related to immediate personal experiences and perceptions, whereas the institutional level refers to impacts related to teaching, research, services and organisation. Institutional impacts are observed in the context of higher education institutions, affecting faculty members in their professional life and determining their personal involvement and engagement in the international arena. Global level impacts are partly abstract or globally obvious, and either affect academics personally

or impact on a global and structural dimension of the academic profession. As Table 1 shows, each level has its own perceived impacts, which are multifaceted and overlapping. These impacts cover a wide range of issues, some of which directly affect academics, while others occur through the institution or in society at large, and thus have an indirect influence on the academic profession. Institutional impacts are often caused by the mobility of academics. It is therefore very difficult to establish a clear line between individual and institutional impacts; all of them are interdependent and mainly caused by the transnational mobility of academics.

### **Knowledge Production, Transfer and Commodification**

Since the mid-1980s, partly associated with the internationalisation of the academic profession, the status of knowledge and the mode of knowledge production have altered (Hopkins, 2013; Meek, 2003). For some academics, the mobility of academics is an imperative experience that leads them to a new breakthrough and a paradigm shift in knowledge creation (Altbach, 2007). It has been suggested that researchers who show a high level of mobility are exposed to different schools of thought and may therefore be more likely to pursue new and unexplored research topics with better research productivity, efficiency and quality than immobile academics or less mobile academics (Hopkins, 2013). For example, a study report of the UK's Department for Business, Innovation and Skills (2012) confirmed that international academic mobility has the effect of contributing better research productivity, efficiency and quality. According to the report, UK academics are more mobile than those from Canada, China, France, Germany, Italy, Japan and the US. Compared to China and the US, the UK has far fewer researchers, but it is far more efficient in terms of output per researcher due to mobility. One possible explanation for the better mobility of UK academics may be the global affiliation established by Great Britain since the colonial period, while the fact that the English language is used as a lingua franca may also be significant (Plume, 2012). This is further enriched by broader international research collaboration, which takes place across multiple institutions, borders, continents and time zones (Elsevier, 2016). The UK has performed better than other countries in terms of research output, knowledge transfer, human capital and productivity. The study also verified that the UK is a leading research hub in terms of the two quality indicators: usage and citation of articles (Plume, 2012). The 2016 Elsevier report, compiled for the UK's Department for Business, Energy & Industrial Strategy (BEIS), summarised the UK's research performance as follows:

The UK is a well-rounded research nation, with activity (as indicated by article outputs) across all major research fields. Its field-weighted citation impact (FWCI) is well above the world average and it continues to rank first amongst the comparator countries. (Elsevier, 2016, pp. 4–5)

Considering “brain circulation” between countries and sectors, it has been found that most internationally mobile academic professionals are involved in Knowledge and Technology Transfer (KTT) and impact the pedagogical paradigms of institutions in both the host and home country (Edler et al., 2011). Kim and Brooks (2012) have added the “Mode-3” research type to the Mode-1 and Mode-2 research typology of Gibbons et al. (1994). Mode-3 knowledge, according to Kim and Brooks (2012), is based on the biographical narratives of mobile academics’ self-accounts of knowledge creation. This kind of “knowledge” was initially called “Transnational Identity Capital” (Kim, 2010). According to Kim (2010), Mode-1 is based on knowledge capital and the direction of knowledge movement, with the modality of knowledge creation being hierarchical, whereas Mode-2 knowledge incorporates social capital and has an interactive direction, with multiple nodes of knowledge creation. Mode-3 has entwined circular movements of knowledge in the process of new knowledge creation. In their analysis of the biographical narratives of transnational mobile academics, Kim and Brooks (2012) argue that spatial transfer of knowledge, through academic mobility, is followed by knowledge transformation into “transnational identity capital”; it is embedded and travelled knowledge, which is not just *Wissenschaft* (scientific knowledge) but *Weltanschauung* (a view of the world). From this perspective, Kim and Brooks (2012) claim that “academic mobility is not a simple zero-sum game of brain drain/brain gains; but mobility leads to brain transfer and brain transformation” (Kim & Brooks, 2012, p. 5).

Knowledge transfer is not, however, without drawbacks and challenges (Lola, 2005). The knowledge transferred from the West is highly competitive and largely unsympathetic to non-Western concerns, missions and priorities of research and development. For example, Western academic cultures make publication more complicated for non-Western academics by intensifying the competition from abroad and making local or regional publication less prestigious (Lola, 2005); emerging academic centres of excellence in Japan, Taiwan, Singapore and South Africa, for instance, are considered peripheral. China has only recently emerged as a focus of concern. The most prestigious journals and publishers are in the West and publish in English. This persuades non-Western academics to look towards the models and interests of the West. Journals in English exist in most countries of Africa, as well as in Taiwan, Japan and, of

course, Hong Kong and Singapore. Even China now publishes scientific journals in English (Altbach, 2006).

The mobility of the academic profession has commodified knowledge, as well. Particularly teachers and researchers, who have become active actors in international teaching and research, are the major agents in the commodification of knowledge. Knowledge is becoming “exteriorised” from its creators (Meek, 2003); an essential difference has developed between “science as a search for truth” and “science as a search for a response to economic and political interests” (Oliveira, 2002, p. 1). Knowledge is produced not for its own sake, but in order to be sold and consumed, and to be priced or valorised in new production. Due to these new features, knowledge has become a major factor in the global competition for power. On a global scale, wealth and prosperity depends more on access to knowledge than access to natural resources. Meek (2003) goes on to explain that the development of the knowledge society has permeated the intrusion of market relations into many social institutions, including higher education, which have entered into competition. His explanation reads partly as follows:

As the knowledge society continues to develop, market relations based on knowledge production increasingly permeate all aspects and institutions of society, and the university is faced with a growing number of competitors in both research and training. Also, the commodification of knowledge is impacting heavily on the internal social structure of the scientific community. What is at question is the continuing importance and centrality of the university as knowledge is increasingly brought within market and political exchanges. (Meek, 2003, p. 3)

### **Institutional Affiliation**

Recent changes, such as the reduction of research funding, the introduction of marketisation and New Public Management, and the massification of higher education, have gradually affected the nature of the relationship between academics and their institutions, as well as impacting their institutional commitment (Ball, 2012; Dill, 2002). The altruistic role of serving one’s own society’s central and ethical interests at large, and the important attachment that binds academics and institutions together, have dwindled significantly (Coady, 2000). Musselin (2007) articulated this as follows:

The university is no longer a place welcoming and sheltering academic activities, it has more and more taken over the role of an employer. The

affiliation to one's institution is progressively transformed into work relationships. The responsibilities and duties of each academic are not only defined by his/her professional group but also by his/her institutional work arrangements. (Musselin, 2007, p. 180)

This situation has been further aggravated by the internationalisation of the academic profession. Academics are forced to be nomadic in their academic career. They migrate for research collaboration, in search of greener pastures than those of the peripheries, in order to enrich their academic credentials and upgrade their curriculum vitae, as well as for additional revenue. In some disciplines, academic mobility has made professors nomadic; they are detached from their families and from fulfilling domestic academic responsibilities. More and more academics, especially those from the periphery, remain in central higher education institutions long term, sometimes never returning; boundary crossing and making alternative use of cultural spaces in other well-structured higher education institutions has become common for many academics. All of these features have eroded commitment and the relationship between academics and their higher education institutions.

According to Hasegawa and Ogata (2009), one area in which institutional affiliation can be eroded is research. Academics need to travel in order to form scholarly networks and to exchange scientific knowledge (Gärdebo & Soldal, 2017; Jöns, 2008). Research activities are often conveyed outside the premises of one's own institution and transferred into a foreign language, especially English. International collaborative research has become common practice due to opportunities established via the process of academic mobility. The 1992 "Carnegie Study" and the 2007 study "Changing Academic Profession" (CAP) confirm the decline of the sense of academics' belongingness to their respective institutions, demonstrating that institutional affiliations in general have declined by nearly 10 percentage points, from 31.2 percent in 1992 to 22.9 percent in 2007 (Hasegawa & Ogata, 2009; Huang, 2009, 2013).

A further weakening of the relationship between academics and academic institutions is observed in language commitment in publication, research and teaching. The academic research community, particularly the international community, has largely engaged in collaborative research in English, which has become increasingly established as the lingua franca in many higher education domains, such as in instructional media and as the language of research and conferences. The most mobile academics teach in English, undertake research in English and present conference papers in English, both abroad and at home. The IAU (2010) has found that the English language is in high demand and is



a priority among foreign students and scholars. Some 56 percent of respondents to the Third Global Survey of the International Association of Universities confirmed that English is the most highly demanded language<sup>4</sup> in their higher education institutions (IAU, 2010, p. 123). This encourages some academics to travel for collaborative research, or to improve their English through teaching and conference participation. For instance, Huang (2009) confirmed that mobile Japanese faculty members published more articles or books abroad in 2007 than in 1992, with their rate of publication growing from an average of 1.68 times (1992) to 2.28 times (2007). Japanese academics also wrote more articles or books in a foreign language (mainly English), with the average rising from 3.89 to 5.93 times. In South Africa, the number of international academics' publishing articles and books in another country and in a foreign language increased by 3.75 times in the period 1998–2000 (it increased by 3.67 times in the period 1991–2000) (Huang, 2009; Teichler, 2009; Wolhuter & Higgs, 2004).

Publishing in English is becoming more rewarding than publishing in a local language. The hegemony of English-speaking systems in the academic world provides a forceful reason for academics from non-English speaking countries to abandon writing and publishing in indigenous languages. In Norway, for instance, “Academics are given 1000 Norwegian kroner for publishing an article in a Norwegian journal; they are given 7000 kroner for publishing an article in English outside Norway” (Lynch, 2006, p. 9).

The “Englishisation” of research, publication and instruction has grown and become common practice in Europe, Asia and Africa (Altbach & Knight, 2007; Deem et al., 2008; Phillipson, 2008; Yang, 2002). This tendency has the far-reaching impact of marginalising immobile academics and local studies. Some prestigious international academics, particularly in developing countries, impact the research endeavours of local academics and home institutions by intensifying competition and redirecting the research paradigm to their own priority and language interests (Deem et al., 2008). This situation further reduces the dwindling commitment of academics to their institution.

### **“Transnational Identity Capital” or Learning Experiences**

Academic mobility does, however, also result in intercultural learning and sensitivity (Krstic, 2012). It offers academics certain non-pecuniary benefits, such as increased access to professional development and greater

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4 The second and the third were Spanish and French, accounting for only 10 and 8 percent of the respondents, respectively.

international connections, as well as a range of personal benefits collectively known as “transnational identity capital” or learning experiences and skills that enable academics to engage with others (Balasooriya et al., 2014). Hamza (2010) asserts that the exposure of academics to foreign higher education institutions enables them to experience new things as they attempt to interact with local staff and classrooms. International academics bring home the new knowledge, perspectives, skills or practices that they acquire abroad. Although this may have short-term social and economic benefits, in the long term it can lead to the dilution or loss of the cultural characteristics of the indigenous culture, with the extension of “globalised” cultures and an increasing challenge to domestic cultures (Lumby & Foskett, 2016).

According to Hamza (2010), three main themes of change and experience may arise as a result of international interaction: changes in personal and professional attitudes, understanding international students’ learning styles and behaviour, and broadening global perspectives. Professional transformative learning and experience involve significant changes in understanding people and interpreting some significant aspect of the world. Teaching and communicating with students from different cultures creates challenges for faculty members in the classroom. At the same time, it develops the participants’ professional skills in teaching in diverse classrooms and helps faculty members to acquire the ability to deal more effectively with international students and new expectations (Hamza, 2010). The experiences of academics in foreign universities “hold promise for informing fellow academics working in their home universities as they attempt to come to grips with the internationalization of their classroom” (Bodycott & Walker, 2000, p. 80). Academics’ new knowledge of local and global issues leads them to develop openness and new perspectives with regard to other people, cultures and global events (Hamza, 2010). In this regard, it is worth quoting some opinions of the international academic staff interviewed by Hamza (2010).

As far as I am concerned, travel in general opened up a whole new possibility of learning, in a way the books and research, and the internet really can’t do. To actually have contact with people from other cultures, from other places, I think it is extraordinarily important ... my experience increased my tolerance. Knowledge of another people, another way of life, and another culture provides greater understanding, thus greater tolerance. I believe if everyone could have an experience like mine, the world would be a more peaceful place. (Hamza, 2010, p. 62)

International academics also bring many international perspectives home and enlighten those academic staff and students who never travel abroad. This is the other face of “internationalisation at home”. Hamza (2010) quotes two of his other interviewees, both of whom have worked in the Arab world:

Coming back to the U.S., I have a different view of the world, which I can bring to the table here to help educate people about Arab countries and about international issues (Angela). I prepared the curriculum, so I brought to the curriculum my experience of teaching overseas for sure. I am encouraging my own three daughters who are in college now and whenever I have the opportunity, I advise students, young people, and their friends to go abroad (Carol). (Hamza, 2010, p. 64)

International academics also face challenges in teaching foreign students abroad from a pedagogical perspective. According to Trent (2012) and Edwards and Usher (2008), for example, the International English–Language Teaching Assistant (IELTA)<sup>5</sup> programme in Hong Kong, in addition to helping participants develop their cultural awareness and their skills as teachers and learners, has led to unintended results, such as marginalisation. This is manifested through students quitting language classes, and through “othering” or the “us and them” categorisation. Students quit IELTA classes because the international scholars teach differently from the learning traditions and experiences of Hong Kong students. According to one IELTA, Hong Kong students

are really burdened by exams and are really dependent on the teacher. The classes have a huge emphasis on students being passive, taking notes and memorization based learning, not questioning information, which I think is part of their background in schools; in Hong Kong I understand schools are very teacher dominated. And this is very different than my experience in New Zealand universities. Over there, there is definitely a lot more emphasis on independent learning, class discussions and debates, and students’ critical responses to what they are taught. (Trent, 2012, p. 59)

In some countries, the importing of foreign academics reduces the morale of native academics. Better pay and more privileges for similarly qualified

5 “The IELTA program, which recruits up to a dozen teaching assistants per year from Western and Asian Countries, represents part of the university’s strategic plan for internationalisation by fostering a global perspective among staff and students through the provision of national and international teaching and learning experiences” (Trent, 2012, pp. 54-55).

foreign staff affects the situation at home (Rivers, 2010). As the author observes, an instrumental case is represented by Ethiopian higher education institutions, where Indian academic staff are better paid than local staff. This has led to dissatisfaction among local staff, which in turn erodes institutional commitment.

International academics sometimes bridge foreign and home institutions in some ways, and the effects are both rewarding and challenging. International or mobile scholars suffer from the difficulties of reconciling/harmonising the domestic situation with new foreign academic experiences, which eventually affects the overall academic performance at home. This is particularly severe in developing countries. It is further intensified by so-called Diaspora scholars, who have studied and lived in the Global North and represent a significant factor in complicating the academic culture in the developing world. Diaspora scholars can be considered to be agents of brain circulation between centres and peripheries. If not properly managed, they pose additional challenges, as they are well acquainted with the academic and socioeconomic cultures of the country in which they lived. Altbach advocates making better use of the Diaspora, whose conflicting impact can be significant and complex. On the other hand, he claims that academic conflict between foreign educated academics and their local educated colleagues has gradually affected overall academic performance at home. In spite of this conflicting approach, Altbach (2007) unambiguously elucidates the challenges facing the interaction between foreign educated academics and their locally educated colleagues as follows:

In many developing countries, academics with foreign degrees constitute a significant part of the professoriate. Furthermore, these returnees are clustered at the top of the profession and dominate the research-oriented universities. They are the 'power elite' of the academic community. ... Scholars returning from abroad often wish to employ the values they absorbed during their studies to upgrade local standards, whether or not such replication is practical or desirable in local conditions. These academics follow the latest international academic developments and seek to maintain links with the countries in which they studied, often importing scientific equipment as well as ideas. Conflicts between foreign-returning academics and their locally educated colleagues are common. (Altbach, 2007, p. 143)

Mobile academics therefore need to be adequately prepared for internationalisation and for different academic and cultural encounters, such as a diverse student population, various academic cultures and sets of knowledge

bases, and different learning styles. This is because education today requires doing “different things in different ways rather than doing the same things in different ways” (Dale, 2005, p. 117). Academic staff engaged in international teaching require additional “skills to teach” in order to ensure global adaptability and “legitimate peripheral participation” (Pherali, 2012).

## **Academic Status and Profile**

The marketisation of higher education has been closely linked to neo-liberal philosophy, globalisation, the emergence of the knowledge economy, and internationalisation. Market mechanisms and principles affect the teaching and research tasks and the status and profile of the academic profession at home and abroad (Naidoo, 2005), triggering competitive academic mobility and employability. The traditional employment security of the academic profession is weakened by mobile academics and contractual employment of part-timers and casual academics. Inter alia, universities have been persuaded into a new division of academic labour and severe competition for external research funding and international recruitment of research staff (Kim & Brooks, 2012). Market mechanisms have also introduced such practices as casualisation of academic labour, end of tenure, and the need for new forms of governance and management, while entrepreneurial management skills are increasingly becoming “transnational” and “transferable”.

Academic mobility has given rise to phenomena that have made the academic market more open. As part of a major university reform, the United Kingdom abolished academic tenure to make the entire academic system more competitive and international. In Germany, many academics are forced to compete for new positions at other universities, as most new academic appointments do not allow promotion (Kim & Brooks, 2012). In Central Europe and the countries of the former Soviet Union, the traditional academic profession has been greatly weakened by changes in working conditions, deteriorating salaries, competitiveness and the resultant loss of status (Altbach, 2006; Henkel, 2007). Some of the most prestigious universities in the UK, such as Oxford, Cambridge, the London School of Economics, St Andrews and the Open University, have recruited vice-chancellors from abroad, notably from New Zealand, Australia, USA and South Africa. In short, the emergence of manager-academics in entrepreneurial research universities has become a global phenomenon (Kim & Brooks, 2012; Musselin, 2007).

This general transformation of higher education has been further enhanced by the transnational mobility of academics. In the process of mobility

and employability, academics lose their academic autonomy and professional power and generally turn into “skilled entrepreneurs” (Olszen, 2002). Academics are expected to compete in the “academic marketplace” by deliberately designing attractive and competitive courses at home and abroad. As a result, the intellectual merit of the programme is pitted against the need to dumb down standards and make courses appealing for the requirements of the market (Olszen, 2002). Subsequently, the traditional societal respect, academic values and prestige of the academic profession are deteriorating and academics are becoming increasingly commodified (Stilwell, 2003) to be sold abroad. This altered status, profile and role makes academics victims of change rather than agents of change (Doring, 2002). The new role and work transform academics and their profession into “hegemonic tools” that reproduce dominant ideologies, rather than making them “counter-hegemonic agents” who challenge dominant ideologies and promote diversity (Morley, 2003). Consequently, academic conservatism and the changed role of the academic profession coexist in conflict (Enders, 2007; Kehm & Teichler, 2013; Power, 1994; Strathern, 2000).

According to UNESCO (2006), academic accountability has become the norm for the new academic environment, requiring academics to increase productivity with less financial expenditure. Academic accountability also includes issues such as academic governmentality by rules and regulations, as well as rigorous assessment procedures. Furthermore, it forces academics to raise funds and commercialise their research output in various ways. One major way of conforming to the new changes is transnational academic mobility in order to commercialise knowledge and raise funds. The development of market-oriented principles and practices in higher education institutions has compelled academics to behave like entrepreneurs, marketing their expertise, services and research findings locally and abroad. As a result, issues of higher education have become not only the concern of education ministries but also of ministries of commerce and human resource development (Deccan Herald News, 2015). De Wit and Altbach (2015) observed these features of higher education at the conference of the Association of International Educators (NAFSA) held in Boston, USA, on 24–29 May 2015, with over 11,000 participants from 100 countries in attendance. Unlike any time before, the conference brought together a broad range of agents, including recruitment agents, information technology services, insurance companies, marketing companies, security risk management, telecommunications, testing services, travel companies, visa expeditors, language learning programmes and credential evaluators (de Wit & Altbach, 2015).

The commodification of academics is considered by some as an assault on the academic profession. In defence of the autonomy of professions against

vested market and managerial interests, Freidson (2007) argues that these managerial strategies should be resisted, as they impoverish the public domain of knowledge and skill that was previously available for free. The various transformative factors have changed and challenged the professional identity, specialisation, expectations and work roles of academics, as well as their commitment (Kogan & Teichler, 2007). British sociologist Basil Bernstein (1996) perceived the academic crisis in terms of the development of a new and secular concept of knowledge, whereby knowledge is divorced from its creators:

There is a new concept of knowledge and of its relation to those who create and use it. This new concept is a truly secular concept. Knowledge should flow like money to wherever it can create advantage and profit. Indeed knowledge is not like money, it is money. Knowledge is divorced from persons, their commitments, their personal dedications. ... Knowledge, after nearly a thousand years, is divorced from inwardness and literally dehumanized ... what is at stake is the very concept of education itself. (Bernstein, 1996, pp. 87–88)

As some scholars from more restrictive countries enjoy more academic freedom, the academic freedom of others has been restricted and limited. Some countries have placed restrictions on what can be researched and what the academic community can relay to the public (Deccan Herald News, 2015), thus limiting the academic freedom of research and community services. This situation has resulted in the “nationalisation of internationalisation” (de Wit & Altbach, 2015). The University of California at Berkeley, for example, plans to open a global campus ten miles from Berkeley’s main campus at Richmond Bay. This is an unusual plan in an era in which many higher education institutions from the US, the UK, Australia, Singapore, South Africa and so on are establishing branch campuses abroad. The new campus will offer a “global citizenship” curriculum. In opening a global campus near the home campus, the intention of the University of California is “to establish partnerships with universities from around the world while preserving full academic freedom for its faculty” (Will, 2015).

## **Conclusion**

Inter alia, globalisation has contributed to the transformation of higher education, the academic profession, and the process of knowledge production. The academic profession and academic faculty members are pivotal actors in the process of change in higher education.

Since the 1990s, the new internationalisation of higher education and the academic profession has become a widespread and active process and strategy. The universality of knowledge and knowledge creation, its entrepreneurial importance, and the emergence of the knowledge economy and society have influenced the mobility of the academic profession. The transnational mobility of academics has increased significantly in the twenty-first century as a result of changes in higher education and the academic profession, and an intensification of international competition between universities for skilled researchers and revenue. Although there are many actors initiating and enhancing the process of internationalisation, the academic profession is the key actor in this regard. It has initiated contemporary transnational academic mobility and impacted academics in various ways. Academic staff perform competitive international teaching and research, which are the main features of internationalisation. Transnational academic mobility has affected academics and the profession on individual, institutional and/or global levels.

In the process of internationalisation operating under neoliberal, market and managerial principles, the academic profession both benefits and faces challenges. Mobile academics broaden their global perspectives and learn to deal with diverse schools of thought and academic cultures. This will likely enable academics to pursue new and unexplored research topics, and intensify the transfer, production and commodification of knowledge, making them more like entrepreneurs. International academic staff earn non-pecuniary benefits, collectively known as “transnational identity capital” and skills, including increased access to professional development and greater international connections. They may also acquire transformative learning. Academics try to accommodate a student population with a diverse background, enabling them to learn to teach in an international setting. They can also bring home new professional and academic experiences, incorporate new knowledge, perspectives and skills, and broaden their world outlook. The changes and the experiences academics are exposed to can result in changes in personal and professional attitudes.

International academics face the challenge of integrating themselves into a new academic and social environment. In a way, they remain foreign. Some academic staff exploit foreignness as an opportunity to a new breakthrough and paradigm shift in knowledge creation. Audit systems, collaborative research outside one's own higher education institution, publication abroad, the use of a foreign language for publication and so on have eroded the institutional affiliation of academic staff to a varying degree. The policy of brain gain by some developed countries of the world, and the increasing need of developing countries for capacity-building through the process of internationalisation, have initiated



a brain drain and imbalanced internationalisation, perpetuating the unequal development situation in the world. In their cultural learning, academics who stay abroad for longer periods may suffer from cultural shock and the dilution or loss of the cultural characteristics of their original culture.

The sum total of these changes, experiences and challenges affects the status and profile of academics and the academic profession in general. Changes in higher education, the internationalisation of the academic profession, and the subsequent beneficial and challenging impacts have diminished the traditional prestige, status, autonomy and profile of academics and the academic profession.

In order to utilise opportunities and to ease challenges, international academics need to be well prepared psychologically, pedagogically, technically and socially. They need relevant language skills, preferably in English, and training on how to operate information and communication technology facilities. Moreover, they need advance knowledge of the academic, pedagogical, social and cultural environment of their destination.

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## Between Retributive and Restorative Compulsory School Teachers' Discipline Activities

KATJA JEZNIK<sup>\*1</sup>, ROBI KROFLIČ<sup>2</sup> AND METKA KUCHAR<sup>3</sup>

∞ In Slovenia, compulsory schools have, since 2009, been obliged to define their own concept of moral and character education under the formal framework of the Primary School Act. Disciplinary measures in schools are underpinned by two main punishment theories: the more traditional retributive responses to undesired conduct, and the more recent restorative approach. The present study explores the views of 109 teachers from 13 compulsory schools regarding disciplinary measures through the prism of this paradigmatic divide. A qualitative analysis of group discussions in which teachers evaluated the disciplinary measures at each of the 13 schools will be presented. Only three discussion groups were predominantly restorative oriented. Given the proven negative effects of retribution-oriented disciplinary measures, the findings are not encouraging. We conclude that schools need a clearer disciplinary framework with systematic acquisition of knowledge and practical experience in the field of educational and discipline strategies, and that teachers must continuously reflect on their own disciplinary practices.

**Keywords:** compulsory school, restorative and retributive school measures, education, disciplining

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## Med retributivno in restorativno naravnanimi vzgojno-disciplinskimi odzivi učiteljev v osnovni šoli

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KATJA JEZNIK, ROBI KROFLIČ IN METKA KUCHAR

☞ Od leta 2009 so osnovne šole v Sloveniji dolžne opredeliti lasten vzgojni koncept, ki ga v formalnem smislu opredeljuje Zakon o OŠ. V ozadju dokumentov, ki jih pripravljajo na šolah, lahko prepoznamo dve glavni teoriji kaznovanja: bolj tradicionalno, tj. retributivno, in novejšo, tj. restorativno. Skozi prizmo paradigmatških razlik med obema teorijama so v članku predstavljeni izsledki raziskave, v kateri je sodelovalo 109 učiteljev iz 13 osnovnih šol. Predstavljeni so izsledki kvalitativne analize skupinskih razprav na šolah. V razpravah so se učitelji opredeljevali do vzgojno-disciplinskih ukrepov na lastni šoli. Le v treh skupinah so bili učitelji bolj naklonjeni restorativni teoriji kaznovanja kot retributivni. Glede na dokazano negativne učinke retributivno naravnanih disciplinskih ukrepov ugotovitve niso spodbudne. Avtorji vidijo rešitve v sistematičnem izobraževanju učiteljev in teoretsko jasnejši zastavitvi vzgojno-disciplinskih odzivov šol. Hkrati pa bi morali učitelji ves čas reflektirati lastne odzive na vzgojno-disciplinske izzive v šoli.

**Ključne besede:** osnovna šola, retributivni in restorativni vzgojno-disciplinski ukrepi, vzgoja, discipliniranje



## Introduction

A compulsory school is a place where different views exist and complex activities are performed by all stakeholders. While the goals of schooling are relatively clear in the subject curriculum, the school's educational<sup>4</sup> activities are less clear. Subsequent to changes enacted in the school system in the 1990s after Slovenian independence, the educational dimension was supplanted by the schooling dimension due to the threat of repeating the former socialist ideology.<sup>5</sup> Consequently, education became limited to a narrower, disciplinary view aimed at ensuring an uninterrupted teaching process. Educational activities were legally regulated at the systemic level by the *Rules on the Rights and Duties of Pupils* in 1996, 1998 and 2004, with clearly set out sanctions for violations. Neither teachers nor other education professionals were satisfied with this solution. Teachers reported reduced autonomy regarding their educational activities, and other professionals warned that education should not be solely focused on how to maintain discipline in the classroom (Šebart & Krek, 2009).

Since the adoption of the *Primary School Act* (2007), Slovenian schools within compulsory education (6 to 15-year-olds) have maintained a high level of autonomy in determining their educational activities and disciplinary measures.<sup>6</sup> Since September 2009, each school has followed its own *Educational Plan*, which defines ways of achieving educational goals and values, taking into account the needs and interests of pupils and the specifics of the wider environment, as well as *School Rules*. The latter more precisely define pupils' duties and responsibilities, as well as determining rules of conduct and sanctions for violations. Both documents account for pupils' fundamental rights, as defined in the *Primary School Act*, which are aligned with the rights provided in the *Constitution of the Republic of Slovenia* and international documents on

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4 In this article, the term "schooling" refers to acts or processes of imparting particular knowledge and skills to pupils, such as those required for a profession, while the terms "education" and "educational" refer to processes or actions related to the more holistic development of the personality.

5 The main argumentation of the proponents of the claim that education in schools should be reduced to schooling was that any concept of moral and character education has a specific ideological background, so it is better to focus on instructional aims and the necessary formal discipline regulation based on retributive legal theory. Although the claim about the necessary ideological background of any educational curricula is correct (Kelly, 1989), it is also true that, in the ideological vacuum of postmodernism, teachers become victims of the pressure of many particularistic ideological ideas about proper educational and discipline measures (Štrajn, 1992).

6 In this article, disciplinary measures are considered as activities that accustom pupils to accepting the school rules, including various disciplinary practices. On the other hand, following the *Primary School Act* (2007), education is understood in a broader sense as proactive and preventive activities, counselling, guidance and other activities (awards, types of educational measures, etc.) with which the school develops a safe and stimulating environment in which the educational values mentioned in the Act (e.g., active inclusion in a democratic society) can be realised.

children's and human rights. Professionals, pupils and parents are involved in the preparation of both the *Educational Plan* and the *School Rules*, which must be reconfirmed every school year by the school council, as these documents are supposed to be continuously evaluated and, if necessary, reformed. The idea of such an arrangement is to promote the systematic, planned, comprehensive and participative regulation of discipline. The only disciplinary measure that is predetermined by the Act and has the status of an administrative procedure is the so-called formal disciplinary procedure.<sup>7</sup>

After the adoption of the *Primary School Act*, schools received relatively little support by way of expert recommendations and guidelines. During the same period, a document entitled *Recommendations for the Preparation and Implementation of a Compulsory School Educational Plan* (2008) was published. This document was actually created in parallel with the documents in individual schools. Four years later, *The Educational Mission of the School: Planning Manual* (Štraser et al., 2012) was issued. Although these manuals reflected the values and principles of educational activity and provided suggestions for concrete educational activities and disciplinary measures for schools, the schools themselves had autonomy in determining an educational theoretical basis. As a study of a sample of 30 principals showed (Šinkovec, 2017), when planning education, schools relied primarily on (personal) experiences (almost all respondents), while only 63% of the principals stated that their educational plan was based on a particular theory, as well.

Such autonomy for schools can be confusing, since they employ different, and even polarised, guidelines from relevant sources (pedagogy, psychology, various psychotherapeutic approaches, class management theories, etc.). Moreover, the issue of disciplinary measures seems to create a divide in the professional community and, ostensibly, between teachers and other school actors. While some experts call for stricter rules and disciplinary measures and tougher sanctioning of undesired behaviour (e.g., Žorž, 2013), others see the potential of dialogue for resolving conflicts and other educational challenges, possibly based on the systematic development of prosocial, participative relationships between school protagonists (e.g., Čačinovič-Vogrinič, 2008; Kroflič et al., 2011). The paradigmatic divide can also be perceived in the relationship

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7 As an extreme disciplinary measure, a school may impose on a pupil three so-called formal disciplinary warnings per school year; if ineffective, re-schooling can be proposed. Issuing a formal disciplinary warning involves preparing an individual educational plan jointly with the pupil, parents/guardians and teachers concerned. The plan is usually made by the school counselling service, whose chief responsibility is to collaborate with class teachers to resolve complex disciplinary issues and prepare the relevant documents. This measure is also a warning to the parents of the pupil that their child's behaviour is unacceptable and that the school may pursue formal measures to acquire the right to suggest re-schooling the pupil.

between formal disciplinary procedures and the so-called alternative disciplinary measures suggested by the *Recommendations* (2008): consultative conversation, restitution and mediation.<sup>8</sup>

In Slovenia, however, there is no comprehensive evaluation of the almost ten-year period of autonomous planning of educational activities, and no systemic insight into the disciplinary views of teachers and other school actors. There are only a few partial analyses focused on the introduction of educational plans (Šinkovec, 2017; Štraser et al., 2012), which indicate that recent educational documents tend not to be implemented in practice.

The present study focuses on the period of autonomous implementation of educational plans by exploring how teachers understand and implement disciplinary measures. Teachers' views are analysed through the prism of the retributive versus restorative duality. The restorative approach today – having been transferred from criminology to the school domain in the early 1990s – is widespread and underpinned by many manuals. Research suggests that it is more effective in delivering the required behavioural change than traditional punitive sanctions. Moreover, compared with such sanctions, it significantly supports the personal development of young people and the school climate, and even leads to better learning outcomes (Thorsborne & Blood, 2013). At the same time, it has been consistently documented that retributive/punitive school discipline deprives students of educational opportunities and even increases the likelihood of future disciplinary problems (Gonzales, 2012). Furthermore, it has particularly negative consequences for children who are already dealing with multiple sources of stress and trauma in their lives (Thorsborne & Blood, 2013).

In light of this evidence, the present study seeks to determine the extent to which teachers think and act in a restorative or retributive way. Since no school in Slovenia claims to use the restorative approach systematically, in the qualitative part of the study<sup>9</sup> the implicit ways in which restorative versus retributive attitudes reveal themselves were researched. The attitudes of 109 teachers from 13 schools were obtained from discussions. The participants evaluated various disciplinary measures in a concrete disciplinary situation (vignette), and they also commented on the vignette in groups, expressed opinions on disciplinary measures in their own school, and gave recommendations for how

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8 Schools can impose other disciplinary measures as well, such as sending a notice or making a telephone call to parents, withholding privileges (e.g., participation in a school excursion), etc.

9 Since these discussions were part of a larger research project measuring the quality of communication in professionally facilitated (highly structured) groups vs. usual focus groups, and of the psychological factors determining the quality of discussions, the teachers also completed a (paper-based) survey. The facilitated discussions are not part of the current analysis.

their school, support institutions and the Slovenian Ministry of Education, Science and Sport could better support them in the disciplinary aspect of their job. The latter is not, however, the focus of this paper.

The next part of the article presents the retributive and restorative educational approaches, substantiating this paradigmatic duality using ethical theories (deontological ethics versus dialogical ethics). Subsequently, we describe the research methodology, present the results and discuss the findings.

## **Theoretical background**

### **Deontological ethics and retributive disciplinary measures**

Kant's deontological ethics (1988, 1993) and classic theories of moral development (Kohlberg, 1996; Piaget, 2005) regard retributive punishment as the most appropriate disciplinary measure for rule transgressions in school, since "young children are too egocentric to be capable of cognitive and moral reasoning and thus unable to develop ethically until they are older" (Edmiston, 2008, p. 3). Kant (1988) emphasised the categorical imperative as a precondition for morality, suggesting that one must always act in a way that can be considered a principle of the most general law. A moral act (good in ethical terms) thus arises from an awareness of the basic criterion of good (a categorical imperative), while any acts society considers illegal (socially inadmissible) must be punished consistently according to the principle of proportionality of violation and sanction.

Theories of children's moral development claim that the cognitive abilities needed for moral judgement develop gradually (Ma, 2013). Therefore, until they are capable of making deductive moral judgements, children should be submitted to unconditional discipline, and any failure to obey rules should be punished consistently. Such education (disciplining) suppresses a child's egocentric view of the world in early childhood, while explaining the undesired act's inadmissibility strengthens their cognitive ability to understand moral norms. According to this logic, only if a child is submitted to conventional norms, with concurrent suppression of their egocentricity and their tendency towards the pleasure principle, will their autonomous, post-conventional morality subsequently develop.

The retributive theory of sanctioning violations is legitimised by the assumption that an adult autonomously decides to commit a harmful act. Such logic can be used to determine a child's/adolescent's punishment in extreme cases, when an adult indisputably assesses that the child/adolescent was aware of the circumstances and anticipated the consequences (Kroflič et al., 2011). It

is, however, difficult to assess whether a young perpetrator is in fact able to decide how to act appropriately in a given situation. Nevertheless, the defence of consistent retributive punishment of violations has strengthened since the 1970s alongside criticism of overly indulgent, permissive upbringing and the rise of the ideology of neoliberalism, which declares that people, including children, are capable of making free choices (Salecl, 2010).

However, studies are increasingly showing that retributive measures do not produce the desired educational effect, that is, self-correction and self-regulated behaviour (Christie, Nelson, & Jolivette, 2004; Sellman, Cremin, McCluskey, & Sellman, 2014; Thorsborne & Blood, 2013). Retributive measures rely on the re-education power of negative conditioning and not on learning appropriate behaviour. Furthermore, they do not shed light on the circumstances and response types that led to the deviant behaviour, and they fail to strengthen empathy and prosocial motives that are supposed to arouse a desire to rectify harm. These studies also expose several negative effects of retributive measures, such as labelling and subsequent treatment of individuals as “problematic”, which leads to their exclusion.

### Dialogical ethics and restorative justice

Modern dialogical ethics and dialogical educational approaches emphasise the individual’s ability to establish respectful and caring relationships as the key to their ethical conduct (Bingham & Sidorkin, 2004; Kroflič, 2007; Noddings, 1998; Rinaldi, 2006; Rogers, 2014). They place great emphasis on the development of positive personal characteristics or virtues, with empathic prosocial capacities that arise in direct confrontation with other individuals being key; they suggest that the condition of moral conduct is the capacity to empathise with a person, along with a motivational shift from an egocentric perception to caring for that person (Noddings, 1998). A vital role in ensuring morality is played by prosocial emotions, such as empathic guilt (Benjamin, 2000) and compassion (Kristjansson, 2004), while, in a broader sense, the task of moral education and disciplining is to develop these capacities and experience caring relations, which is most easily achieved in an inclusive community that accepts its members’ diversity and the need to respect differences (Biesta, 2011).

The basic principle of restorative justice as a disciplinary measure is to seek to restore the situations of all those affected to what they were before the violation, whereby those directly involved should be able to participate fully in finding suitable solutions. This approach enables the victim to present his or her story and particulate actively in the settlement process, while the perpetrator

is encouraged to transform so as to align his or her expectations with those of the community. This act requires much more significant input from the perpetrator in the settlement process than traditional punishment does, as he or she is supposed to approach the victim with empathy, confess the damage done, and offer compensation by performing agreed acts, resulting in a change in the problematic behaviour. The most typical restorative measure is mediation (Cremin, 2007; Kroflič et al., 2011).

The idea of restorative justice has expanded over the decades from a specific sanctioning logic to a comprehensive educational approach. Effort has been made to design comprehensive school community systems that are not solely focused on restorative justice in the sense of responding to disciplinary issues. The question of how the school can contribute to creating a healthy school environment has been a major consideration. Thorsborne and Blood (2013) emphasised the deliberate development of values, attitudes and skills in teachers and pupils, as well as in school management and families. This broad understanding of restorative education requires the school to consider all aspects of its activities, culture and organisation, and to focus on relational practices that help prevent inappropriate behaviour in the first place (Blood & Thorsborne, 2005). It is, however, also important to ensure that restorative practices are not exclusive.

## **Method**

In our research, we examined how teachers assessed the disciplinary measures in their own schools. They evaluated various disciplinary measures in a concrete disciplinary situation (vignette) and commented on the vignette in groups.

## **Sample**

The 109 participants were teachers working in 13 compulsory schools. The schools were selected according to predetermined criteria in order to ensure that all 12 Slovenian regions were represented, and that the sample included schools of different sizes from larger and smaller cities, suburban areas and rural areas. The sampling method was nonprobability purposive sampling. After identifying the sample, the principals were contacted in order to extend invitations to participate in the study. Three principals declined to participate, so principals from other comparable schools in the same regions were contacted. The principals obtained consent from their teachers, who were informed about

the topic and format through a one-page document that had been drawn up. In individual schools, teachers of grades six to nine participated voluntarily. Discussions were held at the participating schools in December 2015 and January 2016.

The analysed sample of teachers comprised 78.3% women, as can be expected given the gender structure of the population of compulsory school teachers, which has recently been found to be 79.4% female for the second stage of compulsory education (Statistical Office of the Republic of Slovenia, 2016). The ages of the respondents ranged from 26 to 63 years, with an average age of 46.1 (standard deviation [SD] = 9.27). Participants with less than 10 years teaching experience made up 19.1% (N = 43) of the sample, those with 10–20 and 20–30 years of teaching experience accounted for 29.5% (N = 67) and 28.7% (N = 65), respectively, while 22.6% (N = 51) of the participants had been teaching for over 30 years. The teachers were working at schools with student populations ranging from 230 to 837 pupils.

### Data collection and analysis

The teachers in each school were randomly divided into groups of 8–10 members. Each group followed two guidelines: the teachers could not change the topic and must not be overtly disrespectful. A member of the research group attended the discussions and posed substantive questions without directing the discussion. Each discussion lasted about 1.5 hours.

Before the discussion, the teachers read a vignette description of the following practical problem:<sup>10</sup>

*Three boys from the seventh grade left the school building. Martin and Luka rode their bicycles. Luka pushed Martin off his bicycle while he was riding it in the school yard. Martin fell off the bicycle and became angry; he grabbed the chain lock, started swinging it around his head and ran after Luka. Tim also started to chase Luka. He caught him and held him so that Martin could reach him with his chain. When Martin approached, he hit Luka with the chain, but Luka managed to break away and run off. A teacher observed the whole scene from a window.*

The teachers first discussed the response strategies in the presented

10 The description was selected from notes made by students of the Department of Educational Sciences of the Faculty of Arts in Ljubljana, which are prepared every year during study practice within the course Planning of the Public School Educational Concept.

situation and then evaluated the disciplinary measures in their own schools.

In addition to the person leading the discussions in substantive terms, every group included another person documenting the discussion (recording, ongoing note-taking and noting of statements). For the analysis, we structured the notes and determined the coding units whose common notions were identified following the presented theoretical premises (Vogrinc, 2008). The definition of codes for the discussion analysis was grounded in theory and was verified by the collected statements. As retributive voices, we identified teachers' statements that focused on keeping track of previously anticipated and specific responses to the situation. As restorative voices, we defined those comments linking educational activities to mediation, restitution and conversation (which, according to theory, are typical restorative measures) and comments reflecting a clear desire for dialogue and consideration of the context of the situation. This represented a "deductive coding" process (Flick, 2006), or so-called closed coding.

The study results were presented to the participating teachers during a special symposium held in September 2016. Forty teachers from the participating schools attended. Thus, the findings were consensually validated (Telban, 2014), but cannot be generalised.

## Results

### Teachers' comments on the vignette

Although the vignette described a serious violation (violent behaviour), which the *School Rules* state could entail the formal sanction of a formal disciplinary warning, none of the teachers chose such unequivocal argumentation in any of the discussions. However, all 13 groups evaluated the vignette case as a serious violation due to the possibility of serious injury.

Teachers from all of the schools agreed that immediate action was required, although in six of the groups there were teachers who expressed the opinion that any intervention should be avoided (especially at the start of the conversation, when they spoke in the third person) and questioned the scope of their necessary (legal) responsibility or expressed insecurity about the limits of acceptable intervention. Below are some responses showing a feeling of powerlessness, which can lead to a cynical position.

*If it isn't in school or during class, it's better not to react, because taking action is too demanding in formal terms and otherwise. (S<sup>11</sup> 4)*

*You separate them immediately. But we can't do this because we aren't*

11 School.



*allowed to touch them physically and we are afraid of the consequences. (S 8)*

In groups where such concerns arose, participants argued that the moral (ethical) responsibility is as important as the legal responsibility (in terms of respecting the strict letter of the law). All of the groups agreed on the necessity of notifying the parents and possibly having a conversation with the pupils. They agreed that the class teacher, principal and school counsellor should, in principle, be informed of the violation.

The prevailing opinion in most of the groups was that, if the teacher does not feel sufficiently competent, the case should be taken over by a school counsellor. Teachers in some groups even agreed that the police should be called.

*It would be the easiest if they [the police] resolved this. (S 10)*

In the discussion groups, both retributive and restorative voices were present, and teachers confronted each other more or less dialogically. Although the survey results did not reveal any statistically significant differences between schools in the restorative index (Kuhar & Jeznik, 2017), the discussions did indicate certain differences. Three of the groups were completely or largely inclined towards a restorative approach. Below is an example of an extensive response that was given in one of these groups. The following statement was made by a participating teacher, while the others in the group agreed non-verbally (e.g., by nodding) and later complemented what was said.

*Taking measures is necessary in order to interrupt the violence and clearly indicate to everyone involved that it shouldn't be done this way. When the children calm down, it's necessary to have a conversation with them to make them aware of the causes, consequences, etc. Teachers who are qualified mediators would carry out the mediation process the next day and establish how every person perceived the event, how they experienced it, what happened before, why such a heated reaction occurred, what the background was, etc., as well as how to resolve the situation, make resolutions for the future, etc. They would also define a more appropriate reaction! If a teacher doesn't feel competent for mediation, this can be done by the school counsellor. It's certainly reasonable to inform the counsellor about the event. Parents must be included in one way or another. Then there must be a consequence – it depends on the people involved and the situation – sometimes restitution is reasonable, but not necessarily. Formal*

*disciplinary warnings are very rare in our school. Last year, there was only one, and this was above average. If there is a formal measure – but only when justified – it should be imposed only after the situation has been completely cleared up. Then more attention should be paid to the pupils, and [there should be] a class meeting dedicated to the topic of measures imposed when something goes wrong. (S 12)*

The statement below came closest to retributive logic, reflecting a desire to react according to the school rules with regard to serious violations.

*It should be acted upon as stipulated in the rules. Serious violations, like this one, require a formal disciplinary warning. (S 7)*

This measure was further substantiated by referring to its value for the community:

*A disciplinary measure is a message for the whole school. (S 7)*

At the same time, in those discussions where the necessity and reasonableness of a disciplinary measure were emphasised, (other or the same) teachers noted additional aspects of disciplinary measures leading to restorativeness:

*A measure alone isn't enough; a conversation is also needed. (S 11)*

*Like this: individual conversations with all those involved, their confrontation, punishment and apologies. And informing the parents. (S 2)*

In a discussion on the need for sanctioning, teachers in some of the schools emphasised that the measure taken depends on previous actions:

*The measure is adjusted to the pupil; it depends on how often they have already broken the rules. (S 1)*

### **Teachers' attitudes towards existing disciplinary measures**

In part two of the discussions, the teachers stated which violations they or their school encountered most frequently. In most of the schools, interrupting class, telephone use outside the permitted area and peer violence (including online) were listed. The greatest differences between schools were seen in the frequency of what was considered a violation.

In the second part of the discussion, the teachers expressed their views on their school's disciplinary measures. As in the vignette part of the discussion, the groups differed in terms of their inclination towards the restorative or retributive paradigm; opinions varied substantially among the discussion participants. In three of the schools, however, the teachers' opinions in favour of restorative practices were consistent across the group.

### *Formal disciplinary warnings*

Teachers from all of the schools expressed dissatisfaction with the formal disciplinary procedure. They highlighted many procedural deficiencies, especially bureaucratisation, which requires teachers to be well versed in administrative procedures. Moreover, they expressed a fear of parents making legal complaints about the measure.

*The measure-imposing procedure is bureaucratically very complex. I prefer not to impose one because I refuse to complete all those forms and write explanations. (S 2)*

*Imposing formal disciplinary warnings is legally too complicated because everything is defined so precisely. Parents can quickly challenge it due to a failure to consider all the details. It's too bureaucratic, as well. (S 10)*

### *Conversation*

Teachers discussed so-called alternative measures: consultative conversation, mediation and restitution. The statements revealed that many teachers were aware of the importance of the long-term effects of a conversation compared to the short-term effect of retributive punishment.

*A conversation is not enough. However, violations must be highlighted through conversation, not punishment. Otherwise, children are unaware of the consequences and what their reasons were. (S 5)*

*A punishment, deprivation of something, blaming, etc. doesn't solve anything and worsens the situation because children withdraw and cooperate even less. We want the child to know they are accepted, heard, seen... that they can express their tension. We allow them to feel it and not suppress it in their subconscious mind, to let it out; yet we want to teach them different, more acceptable behaviour. We want them to know that they are okay, but that certain actions are not okay. (S 6)*

### ***Mediation***

Nearly all of the participating schools have mediation in their Educational Plans and School Rules, but in practice it is developed to different degrees. Certain teachers expressed satisfaction with mediation, while others doubted its reasonableness and effectiveness.

*It would be reasonable to develop a peer mediation system (e.g., a small circle of mediators) and spread the mediation spirit among pupils in the sense of quality conflict resolution and good relations generally. (S 10)*

*Mediation with a teacher yields good results. (S 9)*

*We don't implement mediation, although we have 12 teachers who are qualified as mediators. Children only give the desired answers. You need two mature individuals for mediation, who are really willing to resolve the dispute. It must be spontaneous, not a formal procedure. (S 11)*

### ***Restitution***

Formally, restitution was an optional measure in all of the participating schools. In many statements, teachers revealed a lack of understanding of this measure; thus, it is no coincidence that restitution was not classified as a restorative index measure in the survey (Kuhar & Jeznik, 2017). The following statements highlight the teachers' active role in proposing restitution to a pupil rather than the perpetrator's active role, raising awareness and agreeing on what would constitute a "good deed".

*Restitution is unreasonable because if someone carries out a good deed, they need a supervisor or somebody else to work with. And the work must be such that they really dislike it. (S 3)*

*We are satisfied with restitution, but it's annoying that the measure is chosen by the class teacher and not the teacher involved. (S 10)*

### ***Prevention***

The importance of prevention was emphasised repeatedly in the discussions, such as the development of emotional and social skills in certain pupils or in "problematic" classes (not in workshops, but more promptly and continuously), while the need to encourage conscious effort in building quality interpersonal relations was also highlighted in some groups.

*We organised workshops and worked with psychologists when the problems initially arose; we set up solid foundations and there are no problems now. (S 5, note: a class teacher talking about one class)*

*Education is as-it-happens in all subjects. It is not reasonable to plan a few hours for this beforehand and then “act smart” for 45 minutes. But there are not enough class hours and not enough space in curricula. There are too many topics to teach, and it’s difficult to take more than five minutes here and then resolve a specific situation; however, this is important for life, as a single statement can leave a strong mark on one’s entire life. (S 12)*

### ***Nostalgia for stricter disciplining***

In some discussions, a feeling of nostalgia arose with regard to the “former” system, in which teachers perceived that they had more disciplinary levers. The desire for more palpable punishments was expressed relatively frequently.

*I’d like to see the old times return, and the punishment. (PS 5; note: only 1 of 11 participants in this group expressed this desire)*

### ***Perception of parents***

In all of the groups, the educational role of parents was a thoroughly discussed topic. The teachers often viewed inappropriate upbringing at home as the reason for disciplinary difficulties with some children, while some of the teachers also reproached parents for inappropriate interference in their pedagogical work. In some groups, the teachers talked about parents in an empathic way, trying to understand their fast pace of life and their requirements, and stressing the need to establish quality contact with them.

*Parents intervene too often, especially ‘VIP’ parents, who refuse to accept there’s something wrong with their child. (S 3)*

*When cooperating with parents, it’s important how the child’s violation is presented to them, how contact is established with them to agree on a specific measure, etc. The focus must be on communication with parents, which isn’t easy with problematic children – that is, children from particularly problematic families. (S 10)*

### *Behaviourally difficult students*

Almost all of the groups particularly highlighted so-called behaviourally difficult students:

*Approximately 10% of children are nowadays, and were in the past, behaviourally difficult. The reason is usually in the family. From the end of their first year, children are in institutions, their parents aren't raising them, they just feed them and then sit them in front of the television ... (S 3)*

## **Discussion and conclusions**

We began this paper by discussing the current organisation of compulsory education in Slovenia. The transformation from the legalistic understanding of education ten years ago to the present arrangement, which gives schools and teachers significant autonomy in their educational activities but inadequate professional support, has in some ways deepened the fundamental paradigmatic divide between teachers. In the present paper, this divide is conceptualised through the prism of penological theory. We focused on restorative vs. retributive approaches, both as a theoretical framework and as the basis for our empirical analysis. By focusing on the viewpoints of teachers regarding disciplinary measures, we have made at least a small contribution to the insight into what is happening in this important field of teachers' pedagogical work.

An analysis of the teachers' discussions showed that the restorative logic prevailed in three of the participating schools, while restorative and retributive voices coexisted in the others. In the schools where the restorative logic prevailed, this manner of thinking and responding had been systematically developed over a long period, as the teachers themselves reported.

Special attention should be paid to teachers' attitudes towards the most formalised disciplinary measures, that is, formal disciplinary warnings and measures emphasised in the Recommendations (2008), including consultative conversation, mediation and restitution.

Regarding formal disciplinary warnings, the data highlighted the teachers' fear that parents would oppose any disciplinary measure by threatening to lodge a formal complaint with the school inspector or even the court, which is permitted under the formal administrative procedure for imposing disciplinary measures. There are no statistics showing how often such threats are actually carried out. The reason the majority of teachers disapproved of this formal measure is also important: they wanted to avoid the administrative obligation of preparing the documentation required to impose a formal disciplinary

warning. The teachers also assessed this measure as lacking gradualness.

Consultative conversation was a very frequently highlighted measure. However, conversation as such is not necessarily a restorative measure; it is also used as part of the retributive sanctioning of violations, to clarify the situation and to justify arguments about the inadmissibility of a disciplinary violation that must follow both legal norms and ethical arguments (why a certain act is unacceptable).

Not all of the schools implement mediation. In the schools where mediation had been implemented, the teachers had differing attitudes towards it, more frequently negative than positive. The bulk of the teachers' statements showed a deficient understanding of the potential successful use of mediation with school pupils, while the consideration of pupils' "maturity" for the process indicated that the traditional view of the egocentric orientation of pupils is deep rooted. Of course, (consultative) conversation and mediation are complex processes that should encompass the capacity to empathise with another person (Noddings, 1998), active listening (Rinaldi, 2006), dialogicality (Bingham & Sidorkin, 2004) and seeking reasonable arguments for all involved (Gibbs, 2003). It would be ideal if teachers, not only school counsellors and teacher mediators, were also appropriately qualified for all of these dimensions.

Theoretically, restitution is a restorative sanction measure. Based on the results, this can be explained by the teachers' lack of understanding of restitution as a method of actively involving the perpetrator in remedying the consequences of the committed act and in the choice of the restorative act. Statements that the teacher should determine a reasonably good deed (e.g., during class) together with the pupil were rare.

The results show that three of the participating schools adopt a restorative approach, even though they do not explicitly use this concept. The attitudes and disciplinary conduct of the teachers at these schools are the result of intentional training. However, the results lead to the conclusion that, in most of the participating schools, teachers lack a thorough understanding of disciplinary measures that are supposed to be restorative (mediation and restitution). In the discussions, retributive voices were nevertheless often overruled by restorative voices. The participants' expressed a desire to have more time for various educational activities aimed at cultivating pupils' emotional and social development (in class hours, voluntary work, even as new subjects). It would appear reasonable to conclude that there is a need to systematically introduce a comprehensive restorative framework, both at the theoretical level and through practical programmes. Besides restorative education, there are several established comprehensive educational frameworks, such as the whole school

approach (Weare, 2013), positive education (Seligman et al., 2009) and social emotional learning (Zins, Weissberg, Wang, & Walberg, 2004). As shown in other countries, such practices require transforming the entire school.

Embedding restorative practice needed to be thought of as a vehicle for cultural change. It was clear that a school could not be restorative without substantial re-engineering of the way they did things, behaviour management and at a relational level. (Thorsborne & Blood, 2013, p. 30)

This does not just concern the school; it would be reasonable to introduce such knowledge and skills in teachers' education, as well. What is needed is process-based education with systematic reflection on acquired knowledge (Štirn Janota, 2016). Currently, the content of teacher education is dominated by market-oriented programmes designed by private providers (Kroflič, 2014).

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## A Q-Methodological Analysis of School Principals' Decision-Making Strategies during the Change Process at Schools

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∞ The purpose of the research was to explore the decision-making strategies that school principals employ while dealing with the challenges faced during the change process at schools. The study was conducted in two cities located in Central and Southeast Turkey, with a sample comprising 29 primary, middle and secondary school principals, selected via a purposive sampling technique. Q methodology, a qualitative-dominant mixed methods research design, was used in the study. The researchers developed and used a concourse of 24 specific items that target school principals' decision-making strategies about change-related challenges in schools by taking a perception-driven decision-making model as the theoretical framework. The statistical software PQMethod was used for data analysis. The findings revealed that school principals shared similar views via the item configurations provided regarding decision-making during times of change, and had a similar profile in terms of decision-making and related strategies. The behavioural decision style was found to be the preferred style. The principals had a profile featuring a high focus on people and low cognitive complexity. The dominant beliefs driving their decision-making strategies seemed to incorporate comprehensive evaluation of the current situation, ethical concerns and organisational values, assessment of technical details, and thorough data collection. Some implications are drawn for researchers and practitioners.

**Keywords:** school principals, organisational change, decision-making strategies, decision-making profile, Q methodology

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## Q-metodološka analiza strategij odločanja ravnateljev med procesom uvajanja šolskih sprememb

MEHMET SEMIH SUMMAK IN MAHMUT KALMAN

~ Namen raziskave je bil preučiti strategije odločanja, ki jih uporabljajo ravnatelji pri spoprijemanju z izzivi v procesu uvajanja šolskih sprememb. V raziskavi, ki je bila izvedena v dveh mestih v osrednji in jugovzhodni Turčiji, je sodelovalo 29 ravnateljev osnovnih in srednjih šol, izbranih s tehniko namenskega vzorčenja. V raziskavi smo uporabili metodologijo Q, tj. dominantno kvalitativno raziskavo mešanih metod. Raziskovalci so razvili in uporabili nabor 24 specifičnih elementov, ki so se osredinjali na strategije odločanja ravnateljev glede izzivov, povezanih s šolskimi spremembami, pri čemer so kot teoretični okvir uporabili model odločanja, ki temelji na zaznavi. Za analizo podatkov smo uporabili statistično programsko opremo PQMethod. Na osnovi podane konfiguracije elementov so rezultati pokazali, da so imeli ravnatelji podobne poglede na sprejemanje odločitev v obdobju sprememb ter podoben profil pri sprejemanju odločitev in s tem povezanih strategij. Prevladujoči slog odločanja je bil vedenjski. Osebnostni profil ravnateljev je pokazal močno osredinjenost na ljudi in nizko kognitivno kompleksnost. Videti je, da prevladujoča prepričanja ravnateljev, ki vplivajo na njihove strategije odločanja, obsegajo celovito oceno trenutnega stanja, etične premisleke in organizacijske vrednote, oceno tehničnih podrobnosti in temeljito zbiranje podatkov. Nekateri sklepi v članku so namenjeni raziskovalcem in strokovnim delavcem v vzgoji in izobraževanju.

**Ključne besede:** ravnatelji, organizacijske spremembe, strategije odločanja, profil odločanja, Q-metodologija

## Introduction

Decision-making is a significant management process (Lunenburg, 2010a) and stands out as one of the most critical responsibilities of managers (Atsan, 2017; Drucker, 2001). It involves choosing the most reasonable view or alternative from a variety of views and alternatives related to an issue, and making a judgment in order to attain the desired result (Şişman, 2010). Bursalioğlu (2013) regards decision-making as the heart of management, arguing that it serves as an axis for other management processes. In all organisational settings, including educational organisations, decision-making is an essential management task (Clayton, 1997), as people who hold administrative positions have to make decisions in order to accomplish their daily responsibilities (Khasawneh, Alomari, & Abu-tineh, 2011). School principals are among the main actors responsible for decision-making in the daily running of schools. However, the way they tend to act with regard to decision-making during organisational change is an issue requiring further investigation. This study therefore attempts to explore school principals' decision-making strategies during organisational change at schools, thus contributing to the existing literature on decision-making and organisational change.

## Literature Review

Decision-making inherently covers a dynamic and complex set of processes (D'Angelo, 2011) often requiring the participation of many stakeholders, not just the manager, and a compendium of various characteristics and strategies. The decision-making process can be characterised as “the process of coping with contradictions and inconsistencies that emerge over time from different sources” (Eranova & Prashantham, 2016, p. 194). Decision-making styles describe the manner in which people make decisions, react to problems, handle information and interact with others (Boulgarides, 1984). In the educational domain, for example, a decision-making style refers to the method employed by school principals in certain administrative tasks when faced with a situation that necessitates choosing between two or more possible choices or actions in order to arrive at a conclusion (Weiss, 1956). In the literature related to decision-making in schools, one of the most investigated topics is the link between decision-making, on the one hand, and leadership and personality traits, on the other. With regard to leadership and personality traits, Mason (2016) found that, compared to other variables, leadership style had the most impact on principals' decision-making, a result that was confirmed in a study by Hariri,

Monypenny and Prideaux (2014). Güçlü, Özer, Kurt and Koşar (2015) found that school principals' personality traits and leadership styles had an effect on their decision-making style. Likewise, Ercan and Altunay (2015) found that there was a positive relationship between school principals' personality traits and decision-making styles. With regard to certain other variables, such as experience, Nixon (2017) revealed that seniority in principalship and previous work experience influenced the way principals made decisions. In the Trimmer (2016) study, it was determined that experienced principals are more likely to take risks in decision-making. Finally, in a study by Halama (2017), self-regulation was found to be an important element in decision-making regarding workplace situations. The author determined that high self-regulation increases vigilant thinking and eliminates maladaptive ways, such as procrastination or buck-passing. Taken together, leadership and personality traits, experience, and self-regulation are some of the aspects linked with the decision-making approaches of school principals, as suggested in previous research.

School principals constitute the administrative staff who have to make decisions concerning the running of schools. They do the planning, organising, leading and monitoring required in order for schools to function (Lunenburg, 2010b), and must deal with a range of diverse situations (Hoy & Tarter, 2010). While undertaking these tasks and managerial responsibilities, and when dealing with situations, school principals need to make decisions by considering both internal and external factors. At this point, the system within which school principals have to make decisions seems to be the determining factor regarding decision-making. In Turkey, public school principals are entrenched in behavioural patterns and responsibilities structured by governmentalities (Kalman & Arslan, 2016); therefore, the decision-making process may be affected by a variety of factors, most of which are elements of the centralised system-wide structure, such as the regulations of the Ministry of National Education (MoNE). Sezer (2016) evinced that Turkish school principals are affected by certain internal and external factors in the decision-making process. Among the internal factors are teachers' views and suggestions, vice-principals' views and suggestions, and the instructional goals of the school. The external factors are reported to be laws and regulations, the views and suggestions of school-parent associations, the general education policy of the country, and the demands of the top management of the MoNE. The Sezer (2016) study was framed according to school principals' perceptions, and the participants in the study did not therefore count themselves among the influencing factors. In a different study by Güçlü et al. (2015), however, teachers argued that school principals and regulations affect the decision-making process. Bakioglu



and Demiral (2013) consistently found that school principals examined regulations when beset with uncertainty while making decisions. Furthermore, they needed support from their vice-principals and experienced managers of other schools, as well as from teachers and school counsellors in their own schools. The evidence provided in the Shakeel and DeAngelis (2017) study consistently demonstrates that the influence of private school principals on school-level activities through decision-making is greater than that of public school principals. All of these research results support the findings of Bursalioğlu (2013), who argued that the most powerful factor affecting the decision-making process, taking into account both internal and external factors, is the degree of centralisation. Another significant issue affecting decision-making is organisational culture. The type of culture organisations nurture may affect the way decisions are made (Al-Yahya, 2008; Basi, 1998). Keeping this in mind, the present study attempts to reveal how Turkish school principals make decisions while dealing with problems arising in the organisational change process. The study is significant in that it aims to provide exploratory information with regard to school principals' decision-making strategies during the change process, with the hope of filling the void in the related literature by evincing the strategies employed by school principals in times of change. It is widely accepted that change has become an integral part of organisational policy-making due to its far-reaching effects for the survival, development and renewal of an organisation (Fullan, 2007; James, 2011; Lewis, 2011). Change in organisations may lead to major alterations in structures, strategies and culture, as well as minor modifications such as rules and procedures (Smollan, 2017), usually accompanied by a cascade of uncertainties, problems and complexities. In an atmosphere of high turbulence and turmoil, school principals have to make decisions, which confronts them with two difficult managerial tasks: *decision-making* and *change management*. The present study therefore attempts to gain insight into the decision-making strategies of school principals during the change process.

## Purpose of the Study

The present study attempts to explore decision-making strategies used by school principals while dealing with the challenges faced during the change process at schools. To this end, the research question that guided the present study was: *What do school principals pay more attention to while making decisions during the change process at schools?*

The research had the following objectives:

- To provide first-hand descriptions of the decision-making styles of a

group of school principals, as perceived by them during times of organisational change.

- To present Q methodology-induced data (with a mixture of qualitative and quantitative research traditions) in order to gain a deeper insight into the decision-making styles employed by school principals in two different cities with varying cultural and contextual aspects.
- To expose the emerging value-laden aspects (if any) of the decisions made by school principals on turbulent ground with some ambiguity (at times of organisational change).

## Method

Q methodology was employed in the present study in order to gain an insight into school principals' decision-making strategies. Q methodology has been recognised as a mixed research approach (Newman & Ramlo, 2010; Ramlo & Newman, 2011), as *qualiquantology* (Stenner, 2011), and more recently as a qualitative-dominant mixed method research (Ramlo, 2016a) that examines human subjectivity (Brown, 1996; Ramlo, 2005, 2016c), that is, "the communication of a personal point of view" (McKeown & Thomas, 2013, p. 2). This methodology helps us to understand the diversity of perspectives (Zabala, 2014) and compare various typologies regarding individuals' behaviour patterns (Yang & Bliss, 2014).

In the present study, the research question was probed using Q methodology because it involves determining various views within a group about a specific topic and the co-construction of meaning depending on views (Hutson & Montgomery, 2011; Newman & Ramlo, 2010). According to Ramlo (2016a), Q is a methodology comprising a technique, a method and a philosophical framework, rather than being a technique of measurement or a method. It covers the data collection procedure, the analytic process, and the conceptual and philosophical framework (Ramlo, 2016b). Two open-ended questions were provided below the concourse to reveal why the principals preferred the "most like" and "most unlike" statements. This allowed them to explain the underpinnings of their preferences of decision-making strategies. The answers to these questions were presented through qualitative descriptions.

## Participants

At the beginning of the study, a total of 31 school principals working at primary, middle and secondary schools participated in the study. The

participants (the P-set) were chosen according to pragmatic considerations (McKeown & Thomas, 2013) concerning their potential to have varying points of view about the topic under investigation (Paige, 2014). The principals were recruited from two cities in Central ( $N = 19$ ) and Southeast Turkey ( $N = 12$ ). However, only 29 of the Q-sorts were usable: two forms were not filled out correctly and were therefore removed from the dataset. The demographic characteristics of the participants are presented in Table 1.

Table 1  
*Demographic characteristics of the participants*

Demographics		N	%
Gender	Male	25	86.1
	Female	4	13.9
Age	25–35 years	8	27.5
	36–45 years	17	58.6
	46–55 years	4	13.9
Seniority in principalship	1–5 years	14	48.3
	6–10 years	9	31
	11 years or more	6	20.7
School type	Primary	10	34.5
	Middle	6	20.7
	Secondary	13	44.8

As Table 1 shows, the majority of the participants were male ( $N = 25$ ). More than half of them ( $N = 17$ ) were 36–45 years of age, and nearly half of them ( $N = 14$ ) had 1–5 years of experience in principalship. Most of them were employed at primary ( $N = 10$ ) and secondary ( $N = 13$ ) schools.

## Data Collection Procedures

The researchers first drafted a comprehensive collection of statements (Paige, 2014; Ramlo, 2011, 2016a) based on Rowe and Boulgarides's (1983) perception-driven decision-making model. The first concourse of statements included 32 items based on four decision-making styles (analytical, behavioural, conceptual and directive), as suggested in the Rowe and Boulgarides model. Half of the statements were negative and the other half were positive. After forming the first draft of the concourse (the Q sample), the researchers sent it to

three other researchers in the field of education to check the comprehensibility of the statements and whether there were linguistically overlapping statements. Some statements were re-worded, and eight statements were removed from the concourse after receiving the external researchers' suggestions. The final concourse included 24 statements about the decision-making approaches/strategies of school principals in the change process. The Q sample was presented to the participants to rank-order the statements into a quasi-normal distribution grid on a nine-point scale (i.e., two statements each at  $-/+ 4$ , two at  $-/+ 3$ , three at  $-/+ 2$ , three at  $-/+ 1$ , and four at 0) from  $+4$  (most like my view) to  $-4$  (most unlike my view). Two open-ended questions were also provided below the Q sorting grid to reveal the participants' underlying views regarding  $+4$  and  $-4$  statements through their own written explanations or statements. Table 2 shows the final version of the concourse and the numbers assigned to the items on the grid.

Table 2

*The Q Sample (Concourse)*

	In the decision-making process:
<b>Analytical Style</b>	<p>I try to obtain every detail and all technical information related to the problem. <b>(23)</b></p> <p>I like to make decisions based on the data available to me. <b>(12)</b></p> <p>I try to find innovative solutions to problems. <b>(8)</b></p> <p>I prefer to think about the problem superficially. <b>(17)</b></p> <p>I trust my intuition. <b>(4)</b></p> <p>The important thing is to produce a solution to the current problem. <b>(21)</b></p>
<b>Behavioural Style</b>	<p>I believe that social relations in my school are at the heart of decision-making processes. <b>(16)</b></p> <p>When making a decision, I refrain from making long-term analyses. <b>(3)</b></p> <p>In any decision-making process, you need to think about how it will affect those on the receiving end. <b>(11)</b></p> <p>In any decision-making process, I try to carefully review/consider everything related to the problem. <b>(18)</b></p> <p>The decision-making process can be a selfish one. <b>(7)</b></p> <p>When making a decision, if necessary, I can disregard social relations in my school. <b>(2)</b></p>
<b>Conceptual Style</b>	<p>Decision-making is a process that involves risk-taking. <b>(13)</b></p> <p>When making decisions, I consider ethical and value-based issues carefully. <b>(24)</b></p> <p>I believe in the necessity of sharing power and authority in the decision-making process. <b>(15)</b></p> <p>In the decision-making process, I try to be careful not to cause negative consequences. <b>(9)</b></p> <p>Rationality/logic is the most important thing guiding me in decision-making. <b>(20)</b></p> <p>I feel the need to control everything while making a decision. <b>(1)</b></p>
<b>Directive Style</b>	<p>I feel time pressure in the decision-making process. <b>(5)</b></p> <p>I tend to make a choice from among the options in the decision-making process. <b>(22)</b></p> <p>I expect to see/feel everyone's respect for the decision I have made. <b>(19)</b></p> <p>To me, every decision should be based on extensive/careful evaluations. <b>(14)</b></p> <p>I try to produce as many different alternatives as possible when making a decision. <b>(6)</b></p> <p>I do not care much about whether other people I work with approve of my decisions or not. <b>(10)</b></p>

As shown in Table 2, the final concourse included 24 statements representing four different aspects of the decision-making model used in the study. Figure 1 shows the quasi-normal distribution grid that was presented to the participants to rank-order the given statements, each of which was numbered randomly, based on their own preferences. Each statement was written on a small card with its assigned number in order to make it easy for the participants to sort the statements into the corresponding box on the grid (Crosby, 2015). The quasi-normal distribution grid used in the research is provided in Figure 1.

Most <i>unlike</i> my view		Neutral					Most <i>like</i> my view	
-4	-3	-2	-1	0	+1	+2	+3	+4

Figure 1. The quasi-normal distribution grid.

Before conducting the research, the participants were given information and instructions on how to use the statements and the grid. Each participant was asked to sort, rank and order the statements in the Q sample using the grid provided in Figure 1. The ranking/sorting/ordering process lasted about 15 minutes for each participant. As the selected principals participated in the study on a voluntary basis, the data were collected over a period of one month.

After the data were gathered, the Q sorts of the participants (the ranking of the statements) were analysed using PQMethod 2.35 software (Schmolck, 2015), which is available for research purposes free of charge. The Q sorts were examined using factor analysis and interpretation to determine whether the participants' views converged or diverged regarding the research topic (Paige, 2014). The use of factor analysis enabled the researchers to determine how the participants shared similar to divergent points of view (Paige, 2015). The significance level was calculated using the equation ( $= 2.58 \times (1 \div \sqrt{\text{no. of items in Q set}})$ ), as specified in Demir and Kul's (2011) book on Q methodology and Crosby's (2015) research. It was found to be .526 for the present study.

## Findings

As a result of the principal component analysis followed by hand rotation, it was seen that the participants' views were grouped into one factor. Following the hand rotation, the participants who were represented by a factor were flagged/selected and indicated with Xs (Newman & Ramlo, 2010). Only one participant's views diverged from the rest of the principals. A total of 28 participants (96.55%) were found to share similar views about their decision-making strategies during the change process at schools. The principals' answers to the open-ended questions were also used as qualitative evidence in relevant contexts to reveal the rationale and the cognitive processes (strategies) employed in decision-making. The factor loadings concerning the items and factors are presented in Table 3.

Table 3  
*Factor Loadings*

Participant	Factor 1	Participant	Factor 1
1	.8511X	16	.5263X
2	.7040X	17	.6796X
3	.6845X	18	.5992X
4	.7467X	19	.5956X
5	.7847X	20	.6908X
6	.7142X	21	.6909X
7	.8731X	22	.8344X
8	.7571X	23	.6642X
9	.6413X	24	.5789X
10	.6679X	25	<b>.4654*</b>
11	.8895X	26	.6943X
12	.6432X	27	.8373X
13	.6775X	28	.6511X
14	.7450X	29	.6033X
15	.6931X		
<b>Total participants</b>		<b>29 principals</b>	
<b>Explanation variance</b>		<b>50%</b>	
<b>Eigenvalue</b>		<b>14.3971</b>	

Note. No significant loading on any factors.

Table 3 indicates the factor loadings that were equal or higher than the significance level, which was determined to be .526 in this study. A total of 28 participants significantly loaded on Factor 1. The factor loading belonging to the 25<sup>th</sup> participant was not significant. Factor 1 had an Eigenvalue of 14.3971 and explained 50% of the total variance. Table 4 indicates Z scores regarding the statements and Z-score rankings of the statements. The statements were ranked based on the points of view of 28 principals.

Table 4

*Z scores regarding the statements and the ranking significance of the statements*

Statement	Factor	Factor 1	
		Z	Rank
24 When making decisions, I consider ethical and value-based issues carefully. (CON)		1.414	1
18 In any decision-making process, I try to carefully review/consider everything related to the problem. (BEH)		1.384	2
14 To me, every decision should be based on extensive/careful evaluations. (DIR)		1.327	3
8 I try to find innovative solutions to problems. (ANAL)		1.182	4
23 I try to obtain every detail and all technical information related to the problem. (ANAL)		1.172	5
21 The important thing is to produce a solution to the current problem. (ANAL)		.889	6
6 I try to produce as many different alternatives as possible when making a decision. (DIR)		.861	7
13 Decision-making is a process that involves risk-taking. (CON)		.546	8
9 In the decision-making process, I try to be careful not to cause negative consequences. (CON)		.383	9
11 In any decision-making process, one needs to think about how it will affect those on the receiving end. (BEH)		.367	10
20 Rationality/logic is the most important thing guiding me in decision-making. (CON)		.355	11
12 I would like to make decisions based on the data available to me. (ANAL)		.181	12
22 I tend to make a choice from among the options in the decision-making process. (DIR)		-.168	13
15 I believe in the necessity of sharing power and authority in the decision-making process. (CON)		-.243	14
4 I trust my intuition in the decision-making process. (ANAL)		-.426	15
5 I feel time pressure in the decision-making process. (DIR)		-.487	16
1 I feel the need to control everything while making a decision. (CON)		-.502	17
16 I believe that social relations in my school are at the heart of decision-making processes. (BEH)		-.587	18

Statement	Factor	Factor 1	
		Z	Rank
19 I expect to see/feel everyone's respect for the decision I have made. (DIR)		-.631	19
3 When making a decision, I refrain from making long-term analyses. (BEH)		-.882	20
2 When making a decision, if necessary, I can disregard social relations in my school. (BEH)		-1.039	21
10 I do not care much about whether other people I work with approve of my decisions or not. (DIR)		-1.307	22
17 I prefer to think about the problem superficially. (ANAL)		-1.754	23
7 The decision-making process can be a selfish one. (BEH)		-2.034	24

Table 4 demonstrates the Z scores belonging to each statement after the analytic process. It was found that 12 statements had positive values and 12 had negative values. Positive values indicated that the school principals agreed with the statements regarding the aspects considered during the decision-making process, whereas negative values referred to the statements that the school principals disagreed with while making decisions during the change process. When the top six “most like my view” statements are examined, it can be seen that the school principals paid attention to considering ethical and value-based issues carefully in the decision-making process. The statement “*When making decisions, I consider ethical and value-based issues carefully*” had the highest Z score ( $Z = 1.414$ ), implying that the participating principals seemed to perceive themselves as value-laden administrators when engaged in decision-making at times of organisational change.

The statement with the second highest Z score was related to the careful delineation of every detail related to the challenges faced in the decision-making process; “*In any decision-making process, I try to carefully review/consider everything related to the problem*”. Making careful evaluations, finding innovative solutions to problems, endeavouring to access all technical information and details related to the problems, and viewing the solution of the current problems as pivotal were among the issues that the school principals paid more attention to prior to making decisions about the challenges faced during the change process at schools. P3 explained his views as follows: “*It is of high importance to be ethical in decisions, to get them internalised and to be well informed about the problems.*” Another principal commented: “*Being mindful and thoughtful is important in decisions. Logical decisions should pass through the ethical values filter...*” (P27). P9 noted that: “*The most important thing in the decision-making process is to find a solution to the problem. This must be done by complying with values and ethics...*” Consistent with P3, P27 and P9, participant



P20 believed that: *“If a decision is to be made, it should first be considered in detail and made in accordance with ethical rules...”*

P4 focused on the significance of the decision-making process: *“Decision-making is a fine-tuned task and a process that requires attention to details...”* P21 had similar views: *“Before making a decision, I prioritise analysing everything thoroughly to avoid making mistakes...”* P4 stated that: *“Details and technical knowledge are important to me in the decision-making process...”* Another principal (P26) noted that: *“While giving importance to innovative thinking, having technical knowledge increases the accuracy of my decisions...”* In parallel to P21, P4 and P26, participant P8 argued that: *“Decisions must be made without rushing and by examining every detail...”*

As can be understood from the principals' views, ethicalness, values, collecting detailed and technical information, and making careful evaluations were the most highlighted and prioritised factors in decision-making. Hence, either adhering to these principles as an ideal intention or applying them on the ground shows that principals are bound to take values and ethical issues seriously in decision-making processes. Their concerns regarding the issue of obtaining detailed information and making comprehensive evaluations may indicate that the principals were keen to make determined, long-term and sound decisions rather than quick-fix and unsustainable decisions that could exacerbate the existing situations and problems.

The statements that the school principals rejected or disagreed with were seen to have negative Z scores. A total of 12 statements were rejected by the school principals. The top six “unlike my view” statements were related to self-interest (selfishness), a superficial examination of problems, others' views (i.e., respect for or approval) of the decisions made, refraining from long-term analyses, and the role of social relations in the decision-making process. The statement with the highest negative Z score ( $z = -2.034$ ) was: *“The decision-making process can be a selfish one”*. This statement was conceived as a negative strategy or approach related to the behavioural approach in decision-making. P1 opined that: *“Selfishness affects the functioning of the institution negatively. Social relations at school can never be underestimated...”* Another respondent pointed out that: *“Monolithic decisions do not assure efficiency...”* (P2), while P18 specified the role of consulting others: *“Consultation is needed instead of selfishness in the decision-making process...”*

The statement with the second highest Z value was related to the superficial examination of the problems faced. The principals disagreed with this statement, as they may believe that the challenges faced during change require careful delineation and consideration in schools. P11 focused on the negative

impact of selfish and superficial thinking: *“Superficial thinking reduces the quality of judgment. Selfish thinking gives rise to the possibility that the decision may cause new problems in the future...”* P27 shared a similar view: *“A long thinking period and collaboration should precede decisions...”*

Nearly all of the principals had similar views on the negative impacts of selfishness in decision-making during the change process at schools. Obtaining other colleagues' approval regarding decisions was also considered to be significant. It can be suggested that the school principals regarded social relations in schools to be critical in decision-making in the change process. They believed that a superficial or selfish approach may lead to inefficiency, future problems, and dysfunction in the organisation. Some of them delineated their views on the importance of participatory or collaborative decision-making as follows:

*“The opinions of the people I work with are important to me; no decisions should disrupt our social relations...”* (P8)

*“When making decisions, my teammates are supposed to agree with me. I have to make a decision that they will approve of and accept...”* (P19)

*“It cannot be expected that everyone will respect the decisions made. The people I usually work with are important in the decision-making process...”* (P23)

However, three of the principals had divergent views on social relations in decision-making at times of change: *“School interests are more important than my social relations with people...”* (P26). *“If I believe that I have made the right decisions, I do not give much credit to the approval of others...”* (P12). *“When social relations are placed at the heart of the solution process, instead of relying on available data, decisions made under the heavy burden of emotions will be fast but subjective anyway...”* (P7).

A Z-score analysis regarding the data collected from the participants displayed the profiles regarding decision-making more clearly. Table 5 shows the four dimensions and their average Z values.

Average Z values were calculated using the following formula, employed by Yildırım (2017):

$$Z_{\text{means}} = (Z \text{ value of each positive statement for each dimension (the sum of 3 positive statements for each dimension)} - Z \text{ value of each negative statement for each dimension (the sum of 3 negative statements for each dimension)}) / 6$$

Table 5  
Average Z values regarding decision-making dimensions

<i>Dimension</i>	<i>Z<sub>means</sub> of positive statements</i>	<i>Z<sub>means</sub> of negative statements</i>	<i>X</i>
Behavioural	1.164	-3.955	.853
Analytical	2.535	-1.291	.638
Directive	.528	-.933	.243
Conceptual	1.554	.399	.192

When the school principals' decision-making strategies are examined in the light of average Z values, it can be seen that the most preferred dimensions are behavioural ( $Xz = .853$ ), analytical ( $Xz = .638$ ), directive ( $Xz = .243$ ) and conceptual ( $Xz = .192$ ). Considering the two most preferred dimensions (i.e., behavioural and analytical), it can be asserted that there is a strong focus on social interactions and on the feelings and thoughts of school staff, and that the principals had a high tolerance for ambiguity and attempted to use abundant information when making decisions during the change process. The Z means of these two dimensions were higher than those of directive and conceptual dimensions.

## Discussion and Conclusion

School principals have to make decisions that can affect the school, the instructional programmes, and the students and teachers on a daily basis. These decisions are expected to be good decisions in an environment that requires prompt action (Calabrese & Zepeda, 1999). At times of organisational change, however, decision-making becomes a more critical issue due to the turbulent nature of change. The present study aimed to reveal how school principals make decisions during the change process and to determine what they care about most: tasks, people or both. The factor analysis indicated that the school principals' decision-making strategies were grouped into one factor, which means that they shared similar decision-making strategies when dealing with the challenges faced during the change process at schools. Based on the findings, it can be suggested that the school principals had a similar profile and general characteristics with regard to decision-making and the strategies used in the decision-making process. It was concluded that the school principals reached a consensus regarding the issues to be considered in the change process. They believed that ethical and value-based issues are significant when making decisions during the change process. In this respect, the principals seemed to

employ behavioural style-driven decision-making due to the dominant motives arising from context and culture-bounded aspects, such as, arguably, a compelling need for “being socially acceptable and bureaucratically fit”. This finding is in accordance with Kasprzhak and Bysik’s (2015) study, which found “contextual factors” to be the driving force behind Russian school principals’ decision-making processes.

The issues on which the school principals shared similar views were: thinking of or reviewing every detail related to the problems faced, making extensive and careful evaluations, finding innovative solutions to problems, and appealing to thorough data collection. These aspects were supported with the principals’ verbal explanations. The points that the school principals rejected or were against were found to be: considering decision-making as a selfish process, handling problems superficially, expecting everyone’s respect for the decisions made, refraining from long-term analyses, overlooking social relations in school, and not caring for others’ approval of the decisions made. This inclination parallels collective culture theory (Hofstede, Hofstede, & Minkov, 2010) in which individualistic traits are considered to be socially unfit and somewhat selfish. The influence of managers’ national culture on their decision-making styles is also revealed by Podrug (2011) and Yang (2016). A steep hierarchy and a bulky bureaucracy are the dominant/descriptive features of the Turkish education system at all levels of operation. The participating principals’ orientation towards carrying out extensive and careful evaluations and appealing to thorough data collection processes may be partly related to these political factors and their adherence to making correct decisions. In fact, the reason for participants’ adhering to a “behavioural” style could be explained by political-influence orientation and environmental factors.

Decision-making behaviour is mainly affected by contextual factors such as the level of uncertainty, ever-changing dynamic environments, and competing goals and values (Alenjung & Persson, 2005). Naturally, decisions made at times of organisational change require special attention, as the environment can be rather turbulent and is characterised by uncertainty. A close examination of the findings suggests that the decision-making style of Turkish principals is partly consistent with that of other international counterparts. For instance, Bayburin, Bycik, Filinov, Isaeva and Kasprzhak (2015) report that some Russian school principals, albeit a minority in the sample, used a conceptual style and became good candidates of reform agents. However, the conceptual style was the least preferred decision-making style in the present study. According to Rowe and Boulgarides (1983), individuals may have one or more dominant styles with one or more substitute styles. Although a behavioural

decision-making style was the most preferred style, it can be asserted that Turkish school principals use other styles when needed. The second most preferred style (i.e., analytical) could imply that Turkish school principals have a high tolerance for ambiguity in terms of decision-making, which is worthy of further consideration during the change process. Jordanian school principals, on the other hand, mainly use a directive decision-making style (Al-Omari, 2013), while Indian managers were observed to tend towards an analytical style (Misra & Srivastava, 2012). Based on the average *Z* values, it can be concluded that Turkish school principals, in this case, favoured people-oriented decisions involving low cognitive complexity. A broader categorisation of the analysis of the top six statements indicates that ethical concerns, organisational values, conducting extensive evaluations prior to decisions, adherence to data-driven decision-making, and innovative problem-solving are the strategies that the school principals agreed upon.

Based on the findings of the research, it can be suggested that, in times of change, principals tend to make decisions taking humanitarian and social aspects into consideration more than technical aspects. Considering humanitarian aspects such as human relations may help the change process to be more value-laden. Accordingly, taking the technical aspects into consideration may both help the change succeed and serve as a catalyst for running the change process smoothly. The results of this study are somewhat consistent with those of Schechter and Shaked (2017), who found that school principals tended to care about teachers' attitudes and abilities, and to take into consideration the characteristics and circumstances of their schools, while also employing their practical wisdom when necessary during educational reform initiatives. Decision-making has the potential to influence an organisation's performance and reputation, as well as its members' welfare and security (George & Dane, 2016); therefore, considering both humanitarian and technical aspects carefully may benefit both the organisation and its members.

Drawing on the results of the study, we propose that, rather than implementing socially approvable and bureaucratically fit decisions, principals must think about making and implementing decisions promoting and institutionalising change that address the needs of the organisation during the change process, in terms of both tasks and people; this can help staff to achieve better results in the long run. Since the operational conditions of schools and principals in turbulent times (i.e., during organisational change) differ markedly across different cultures, principals often need to adapt context-relevant decisions and ponder contingent situations such as change during the process of decision-making.

Inter alia, the present study is significant in that it contributes to the existing knowledge base by providing an insight into the profile of school principals' decision-making strategies during the change process. Further research should be conducted with larger samples using different methods and techniques in order to gain more fine-grained evidence regarding school principals' decision-making profiles at times of change in schools. New evidence regarding their decision-making profiles may help enhance the quality of decisions made during organisational change initiatives and encourage the consideration of significant variables while making decisions.

### Limitations

Although the Q-methodology was employed, the analysed data were collected through participants' verbal and written explanations; no direct observations were made by the researchers at the time of the actual decision-making practices of the principals. This may be one of the limitations in the study, as the participants' explanations were assumed to be sincere and based on realities. The findings of the study should therefore be considered with this limitation in mind.

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## Structural Reasons for School Violence and Education Strategies

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JANEZ KREK<sup>1</sup>

∞ For the purposes of the research, we developed a concept of structural reasons that we theoretically assume appear as typical structural reasons for violence in schools. With empirical research, we determined how primary school teachers recognise violent behaviour and how they execute moral education in the areas of the specific structural reasons for violence. We found that the majority of teachers have appropriate pedagogical knowledge to recognise the specific structural reasons for violence and are able to identify the appropriate moral education or support strategy to address the identified violent or disruptive behaviour. However, even in cases of repeating acts of violence, teachers only begin to engage with the factors or reasons behind violent incidents in individual cases, and not systematically. We therefore suggest that schools introduce the systematic differentiation of structural reasons for violence and incorporate this approach in the school moral education plan and the work of teachers. Within such frameworks, violence and disruptive behaviour would be eliminated through moral education and/or support strategies appropriate to the specific structural reasons.

**Keywords:** structural reasons for school violence, moral education strategies, preventive programmes, behaviour management, bullying, inclusion

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## Strukturni razlogi nasilja v šoli in edukacijske strategije

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JANEZ KREK

☞ Za namen raziskave smo oblikovali koncept strukturnih razlogov, za katere smo teoretično predpostavili, da se pojavljajo v šolskem okolju kot tipični strukturni razlogi nasilja v šoli. Z empirično raziskavo smo odgovorili na vprašanje, kako učitelji v osnovni šoli prepoznavajo nasilno vedenje in vzgojno delujejo na področjih posameznih strukturnih razlogov nasilja. Ugotovili smo, da ima večina učiteljev ustrezno pedagoško znanje, da iz opisov tipičnega vedenja učencev prepoznajo določeni strukturni razlog nasilja in da glede na ugotovljeno nasilno oziroma moteče vedenje učenca prepoznajo, katera bi bila ustrežnejša vzgojna ali podporna strategija učitelja. Kljub temu se tudi ob ponavljajočih se dejanjih nasilja učitelj le v posameznih primerih začne ukvarjati z dejavniki oziroma razlogi, ki so v ozadju teh nasilnih dogodkov, ne pa sistematično. Zato predlagamo, da bi šole uvedle sistematično razlikovanje strukturnih razlogov za nasilje ter ta pristop vgradile v vzgojne načrte šol in delo učiteljev. V tako vzpostavljenih okvirih bi odpravljale nasilje in moteče vedenje z vzgojnimi in/ali s podpornimi strategijami, ustrežajočimi tem strukturnim razlogom.

**Ključne besede:** strukturni razlogi nasilja, vzgojne strategije, preventivni programi, upravljanje vedenja, medvrstniško nasilje, inkluzija

## Introduction

Through an outline of our theoretical premises and a critical analysis of the theoretical basis of selected anti-violence preventive programmes, we developed a concept of structural reasons that we theoretically assume appear as typical *structural reasons for violence* in schools. With empirical research, we sought to answer the research question of how teachers in primary school, without any additional education or training, recognise violent behaviour, and how they act in the areas of the defined structural reasons for violence. Based on descriptions of typical student behaviour presented in five vignettes, we wanted to determine whether teachers recognise the specific structural reason for the described violence and, in view of the determined violent or disruptive behaviour of the student, whether they can identify which moral education or support strategy would be more appropriate for them to adopt. In addition, through a questionnaire and by conducting semi-structured interviews, the research focused on the teachers' current behaviour. Our aim was to establish whether teachers deal with the occurrence of violence by attempting to understand and identify the reasons for its occurrence and working towards eliminating the identified reasons, or, conversely, whether they seek to eliminate violence primarily as an undesirable consequence, without recognising and dealing with the reason for violence.

The purpose of the empirical research was to find out whether teachers in Slovenia have appropriate professional knowledge and educational behaviours that would allow schools to introduce the systematic differentiation of structural reasons for violence and incorporate such an anti-violence approach in the so-called school moral education plan and in the actual educational work of teachers.

## Theoretical starting points

We should first point out some theoretical assumptions that are important in dealing with violence in education and that guided us in the preparation of the empirical research.

We live in a society in which the imperative of zero tolerance of violence has been established, which is binding for schools, as well (in Slovenia, the prohibition of violence is imposed by law). This does not mean that it is possible to eradicate violence. From the perspective of this social norm, the occurrence of violence is first of all a failure, which is why the general imperative of zero tolerance of violence in education is not enough, as it merely conveys what should

not be, it gives a name to something that is supposed to be absent. Nonetheless, education is a process and it takes place through actions, through success *and* failure. Even when violent events occur, we can, in education, operate from the imperative of *success in failure*: both the teacher (with regard to individual events) and the school (by preparing strategies for countering violence) can turn the negativity of violence into something positive. The precondition is that we take the failure as a starting point that commits us to recognising and understanding violence, to seeking moral education strategies and ways of supporting the student that will transform violence as a failure into a starting point for achieving subjective changes that provide everyone concerned, especially the student, with an exit from the closed circle of violence.

The commitment of the teacher to the dialectics of success in failure is, of course, a general basis of educational ethics. We highlight this fact because this dialectic also applies to the problem of violence, only with certain specificities. In moral education discourse, occurrences of violence are not simply “mistakes” as generally in learning; we evaluate and condemn violence as morally unacceptable. For moral education, there is an inherent and indispensable moral discourse that transforms failure from an “error” into an “offence”, thus changing the educational perspective. Schools form lists of offences in the form of descriptions of specific instances of physical, psychological and other occurrences of violence. Due to the fact that they are morally unacceptable, offences ensure a view that reduces violence as a result of some reason to a pure undesirable consequence. As soon as the problem of violence is defined and identified *only* as an offence, it becomes ethically appropriate for the school to take measures against violence, which it understands only as an undesirable consequence. The result is that, in moral education discourse, it may seem justified to prevent violence as a phenomenon without at the same time addressing its causes.

When violence occurs in interpersonal relationships, the background is usually more complex than indicated by the immediate cause of the particular event. The fact that it is worth understanding the reasons for violence becomes even more apparent when certain forms of violence reoccur. This conclusion is in no way unusual. However, the fundamental educational role of the teacher, without consideration of the moral education aspect, *sets this conclusion aside*. The teacher can provide quality instruction in the context of established order, which enables a sense of security and ensures that the students are calm and focused on the learning process. From the perspective of knowledge-related objectives, the occurrence of violence is above all a disruptive factor. However, many occurrences of violence are seen *only* as “disruptive behaviour”. In order not to break the teaching process, the teacher may try to react by ignoring

disruptive behaviour to a certain extent. The moral education role of education is an additional reason for the teacher to strive to establish a symbolic order in which the respecting of rules prevails. At the same time, students enter school at an age at which it is assumed that, at least on a basic level, they already “know what is right” or what their “expected behaviour” should be. If they do not behave this way, it may seem that all that is needed is to correct the inappropriate result of upbringing, to discipline them through punishment, and not to deal with the reasons for the inappropriate behaviour.

With this logic of the moral education role of education, at least since the Enlightenment (in terms of the philosophy of education, from Rousseau and Kant onwards), the insight has persisted in pedagogy that the individual does not come into the world already corrupted, but is the result of education that reflects the society or environment in which s/he grows up. Today, various pedagogical theories, despite sometimes being conceptually contradictory in certain respects, do not reduce violence to moral condemnation, but instead introduce an ethics of recognition and a perspective that attempts to understand the reasons for violence. Although the moral education role of the school persists, preventive programmes aimed at preventing violence have entered school systems and schools on a large scale.

### **School violence and preventive programmes**

In their work *Comprehensive Behaviour Management* (Martella, Ron Nelson, Marchand-Martella, & O’Reilly, 2012), Martella, Ron Nelson, Marchand-Martella and O’Reilly analyse ten educational models or preventive programmes developed by various authors in the second half of the twentieth century as an alternative to the model of discipline through punishment: assertive discipline (Canter et al.), logical consequences (Dreikurs), reality therapy (Glasser), Fay’s “love and logic” model, the programmes of Ginott, Kounin and Jones (these three programmes are named after their authors), character education, the Positive Action programme, and the Caring School Community programme. In their analyses of these models and programmes, the authors determine the strengths and weaknesses of each approach, and conclude that they all have one common trait: “they all rest on some form of consequence for misbehavior, although many argue against external control” (Martella et al., 2012, p. 21). We understand this common point as a weakness of all of the preventive programmes listed. Although *a certain form of consequence for inappropriate behaviour*, as proposed by a particular educational model or preventive programme, does assume a preliminary analysis and a *certain* understanding

of the reasons for inappropriate behaviour, the actual reasons for inappropriate behaviour are too complex for any “form of consequence for misbehaviour” of a pre-prepared model or preventive programme to be able to provide a universal approach with the potential to effectively eliminate the numerous different reasons for inappropriate behaviour. The programme therefore necessarily misses many targets. Preventive programmes can, to some extent, be successful and more or less appropriate in relation to various problems of violence, but the implementation of a particular programme does not bring a “universal solution”.

In their work *Preventing Bullying and School Violence* (Twemlow & Sacco, 2012), which has a theoretical basis in psychiatry and social work, Twemlow and Sacco state that “there is a gargantuan amount of research literature on bullying and school violence, and that the United States alone has more than 300 programmes designed to ameliorate violence” (Twemlow & Sacco, 2012, p. 16). However, they find that, in the US, many anti-violence interventions may approach the problem from an oversimplified perspective or attempt to address only certain components of the problem in isolation. The authors add that we can find a large number of specific programmatic solutions to behavioural problems that only further burden teachers, who consequently ignore them or do not take them seriously (Twemlow & Sacco, 2012). As Biggs, Vernberg, Twemlow, Fonagy and Dill (Biggs, Vernberg, Twemlow, Fonagy, & Dill, 2008) determine in their research, for the successful operation of schools against violence, it is also crucial for teachers to feel a commitment to the programme they are implementing.

With regard to these findings, it is worth noting that Slovenia has a statutory regulation that requires every state primary school to prepare a “school moral education plan” (Državni zbor Republike Slovenije, 2006, Art. 60). The law allows schools to establish autonomous symbolic frameworks for moral education activities that are binding for all participants. In so doing, it also directs schools to manage teachers’ commitment to school moral education strategies. If properly implemented, the annual preparation and implementation of the school moral education plan encourages the commitment of teachers to use moral education strategies applicable to the school, which includes systematically dealing with the issue of violence. However, we should also be critical. Although the provisions regarding the preparation of the “school moral education plan” by way of a “particular” list state certain key terms, they do not indicate that schools should also focus on the reasons for violence at school.

Especially since the introduction of inclusion in 2000, the perspective of attempting to understand the reasons behind the behaviour of the individual student should not be foreign to the Slovenian primary school. Many teachers,



particularly special education teachers, implement individually prepared programmes to support students with special needs (so-called additional professional assistance), which are directed towards individual learners and towards studying the reasons for the individual's behaviour and eliminating deficits. During their studies, teachers learn, inter alia, about the behaviourist-based approach of so-called functional behaviour assessment. This behaviourist-based model assumes that behaviour is entirely caused, and that the cause is ultimately external and physical, taking into account the fact that physiology, culture and environment all have an effect on the individual's behaviour (Martella et al., 2012). In order to understand the student's behaviour, it is necessary to analyse that behaviour and understand how it is shaped by culture, physiology (which can involve the cooperation of a clinical psychologist, psychiatrist or doctor), and the environment, including the school environment (school rules, interpersonal relations, curriculum, lessons, etc.). The analysis assumes a functional relationship between behaviour and consequences, or, in other words, a relationship between cause and effect, and it certainly attempts to achieve a contextual understanding of behaviour as an event (Martella et al., 2012). This type of analysis requires a systematic approach (instruments and measurement) and, due to its complexity, has various degrees of depth. Moreover, it is, of course, always oriented towards understanding the behaviour of the *individual* student. The behaviourist concept of functional behaviour analysis differs from all of the aforementioned preventive programmes and educational models in that the analysis is completely open to establishing links between student behaviour and external influences, that is, the causes thought to result in the specific behaviour, and that these influences in a particular student are determined and proven by measurement, that is, they are empirically demonstrable.

Functional behaviour analysis embraces complexity, individual orientation and openness towards connecting external influences with the student's behaviour and seeking changes in these external influences in order to modify that behaviour. Although this is an advantage of the approach, it is, from the perspective of the general educational role of the school and the teacher's work (even if we leave aside behaviourist assumptions), its weakness, as well. Firstly, the teacher teaches the students of a class, a *group* in which there can be specific subgroups of students. When working in interaction with twenty to thirty or more students, there is a need to ask whether the reasons for the occurrence of violence are entirely individual, or whether in the background there are actually factors that are common but emphasised only among a specific subgroup of students in the class or school. Secondly, the special education profession deals with students with specific problems and therefore takes into account the

possibility of physiological differences as an important factor for deficiencies and disruptive behaviours, as well. Is it really necessary to always take *physiology* into account among the causes of violence? Bullying can be a result of the student's own subjective involvement in interactions with others, in specific "closed circles of subjectivity", in repeating patterns of behaviour, or in characteristic relationships with others that have no connection with physiological predispositions. Expressed in the terminology of the aforementioned behaviourist model, there remain only two key factors to be explored in relation to violence: culture and environment. Thirdly, *recognising* violence in the school environment cannot be entirely "open"; it demands a certain prior preparedness of the institution and teachers.

### **The concept of structural reasons for violence**

The school must therefore also take into account the fact that student behaviour can be due to certain *typical* cultural patterns and behaviours, certain *types* of authority that students are exposed to in both the domestic and school environment, certain typical forms of violence, and so on. A contemporary consequence of inclusion processes is the coexistence of two extremes: on the one hand, the teacher in the class does, of course, have certain general expectations with regard to all students, which are derived from the goals of the curricula, standards of knowledge, the age of the students, and, in the area of moral education, from the common values of the state and the prevailing social "norms of normality"; on the other hand, there is a completely individualised approach, the need to take into account individuality and the inclusion of each student, which is a feature of special education or of inclusion as a valid principle for all students. We assume that between these two extremes there are also typical structures of behaviour that are more frequent, and typical structures of reasons for violence that are also characteristic of certain groups of those involved. Between the extremes of the general and the individualised, the school must take into account the fact that certain patterns of behaviour in the home or at school typically occur, and that these interactions produce structural reasons for violence or disruptive behaviour not only of the individual, but also of specific groups of students.

We use the concept reason (not cause) because in all cases it refers to something that is important as a structure from the perspective of education and the impacts on the occurrence of violence, but that operates from the "background": it is a contextual reason rather than a direct cause of acts of violence. The term *structure* enables the introduction of various semantic levels

and institutional, socio-systemic and interaction contexts: it can refer to the structures of subjectivity, in other cases to the structure of social or cultural values and patterns, and in yet others to the structure of institutional factors or the structure of specific behaviours of teachers. It can even combine all of these contexts and is open to further interpretations.

It is well known that the phenomenon of violence is usually complex, and the structures that act as the key reasons for violence are also complex. An example of a theory that conceptualises the operation of various symbolic structures on the individual is Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979), which points out that, in addition to direct interactions of the student with others (microsystem), s/he is also influenced by the interactions between the systems in which s/he participates (mesosystem), interactions between systems in which s/he does not participate (ecosystem), and the beliefs, values and norms in the wider community (macrosystem). However, the moral education role of the school requires specific consideration. As an example, we should state that the values and norms of the wider community – the macrosystem, which is “most distant” from the individual – also directly guide the actions of the individual and – as stereotypes or prejudices, for example – contribute to the occurrence of violence. From the perspective of moral education, the school must therefore treat this symbolic structure (“macrosystem”) as a specific structural reason for violence.

Much like in behaviourist theory, the conceptualisation of the structural reasons for violence is derived from an analysis of the interaction between subjects. The knowledge that we have or can obtain about the functioning of these structural reasons assumes that there are certain connections between factors in the structure (or in connections of multiple structures), but not necessarily cause-and-effect relations. There is therefore an important difference between the conceptualisation of structural reasons and the behaviourist model: firstly, the conceptualisation of structural reasons must also take into account knowledge that can be obtained with regard to the operation of certain symbolic structures in connection with violence, although empirical research only proves correlations, not causal relationships. Another advantage is that the analysis of structural reasons is therefore not limited to exploring the context of the individual's activity. The conceptualisation of different structural reasons can be derived from empirically researched connections that are typical of groups of individuals, which is of paramount importance for the moral education activities of the teacher in the school context. Secondly, whereas behaviourist functional behaviour analysis, whose object is the individual, takes into account the common effect of three basic structures (physiology, culture and environment),

in a conceptualisation whose object is not necessarily the individual we can forgo physiology as an essential possible context that affects its functioning.

The concept of “structural reasons” assumes that violence and disruptive behaviour should be systematically analysed based on the structure of reasons. On the basis of this analysis, specific cases should be investigated and, with regard to the established reasons in the individual case appropriate, (different) moral education and support strategies should be developed. These strategies can therefore be suitable for use in relation to individuals or certain groups of students, depending on the reason and the specific context. Since the starting point of the research is the differences in the reasons for violence or disruptive behaviour, with the aim of enabling the school to determine and construct the basis of various structural reasons that correspond to specific circumstances, this conceptualisation also differs from those preventive programmes, or “programmatically solutions”, that are based on *a certain form of consequence of inappropriate behaviour* with a preconceived understanding of the reasons for inappropriate behaviours.

The criteria according to which it is possible to organise the various structural reasons for violence into individual groups can therefore be different depending on the identified connections and the significance that can be attributed to individual structures in particular circumstances (such as the specific school, school system, society, etc.). It is necessary to take into account: theoretical knowledge and the knowledge of various areas of expertise – in the field of education philosophy this can be derived from the subject and patterns of subjectivity, while in the field of psychology it takes into account cognitive theories, etc. – and empirical research in which correlations between certain factors have been researched and confirmed; the existence of certain cultural and institutional/systemic factors that play an objective role in the occurrence or prevention of violence and in the way the teacher or school solves the occurrence of violence; and the fact that parents, teachers and others are always (directly or indirectly) involved in interactions with children or students, which means that their actions should be counted as a structural reason for preventing or establishing violence. Which connections act as the reasons for violence by forming a “structure”, and what constitutes the key context, is always a matter of analysis and interpretation in specific situations.

Thirdly, in the school context, difficulties with recognising violence contribute to the complexity of dealing with it. Not every form of violence is visible; we recognise that which we have previously conceptualised. Therefore, the school must prepare concepts and instruments (simple and informal, or complex and standardised) that guide teachers in recognising that which

perpetrators, and often also victims, seek to conceal. This has been identified by various experts for decades. In their study, de Paúl and Arruabarrena (de Paúl & Arruabarrena, 1995) conclude that (1) the existence of different consequences for the child's social and behavioural development depending on the type of maltreatment suggests a need to establish different treatment strategies for physically abused and neglected children, and (2) there is a need for specific interventions based on the individual assessment of each child in order to correct the deficits in the patterns of social interaction and cognitive development shown by the children. A study by Culp, Howell, McDonald and Blankemeyer (Culp, Howell, McDonald, & Blankemeyer, 2001) indicates a need to develop a reliable way to assess whether children are having behavioural problems, either externalising or internalising, so that they can be dealt with earlier rather than later. Furthermore, a study by Holt (2015) points out that being aware of the types of behaviours that children may display while at school would significantly improve the identification of these children by staff members, thus allowing the child earlier access to support from teachers and external agencies. On the other hand, violence can be visible; moreover, it may be there for everyone to see, but the individual does not "recognise" it because s/he can "evaluate" it as a phenomenon that can be "overlooked" or that is "better" to overlook. Twemlow and Sacco believe that, in the USA,

very few schools have personnel who are trained to recognize the signs that a student may be at risk of acting violently (...) It is critical that school personnel understand the range of signs of physical, social and emotional violence, because these signs provide the information needed to 'stand up' and address the problem and/or to seek help from others. (Twemlow & Sacco, 2012, pp. 15–16)

The authors also point out that more emphasis should be placed on *ways to prepare the school context* for addressing the problem of school violence, and less on the specific preventive programme chosen (Twemlow & Sacco, 2012). If we transfer these findings to the Slovenian context, the annual preparation and implementation of the school moral education plan could, among other things, be devoted to ensuring that, through the conceptualisation of structural reasons, the school has an organised influence on the recognition and understanding of violence, on the preparation of instruments for recognising the structures of behaviour, and on the application of moral education strategies that should be used in relation to specific forms of violence or disruptive behaviour in connection with the structural reasons.

## Structural reasons for violence as a research problem

The starting point for the empirical research was the thesis that the school moral education plan should address the typical structural reasons for violence, the “wider background”, within the framework of which the school must continuously engage in moral education strategies and, on their basis, operate educationally and supportively to prevent and eliminate the reasons that lead to undesirable or violent behaviour by individual students.

Regardless of the specific Slovenian context in which the research was carried out, the general question for every teacher, school and school system is whether teachers, when faced with the occurrence of violence at school every day, deal with it merely as an undesirable consequence and seek to eliminate it without having to deal with the reason for violence, or whether they deal with the occurrence of violence by trying to understand its reasons and by taking steps to eliminate these reasons.

For the purposes of the research, we devised a concept of structural reasons that we can theoretically assume appear in the school environment as typical structural reasons for violence among students. Prior to substantiating the reasons, we simply list them briefly: 1) the child is often exposed to physical violence; 2) permissive, very lenient upbringing; 3) in his/her environment, the child has examples of a hostile stance towards people (peers) who are different; 4) bullying; 5) violence and disruptive behaviour related to the specific characteristics of a student with special needs; and 6) abuse of the child in the home environment. This concept of reasons is not intended for an analysis of the occurrence of violence or undesirable behaviour characteristic of a particular school, nor does it have pretensions of being exhaustive; we assume that other reasons or combinations of structural reasons can contribute to the violence or undesirable behaviour of students. Furthermore, the purpose of the concept of grouping is not to remove the need to examine the individual circumstances in cases where violence occurs.

As stated above, *within the framework of each* structural reason for violence, consideration should be given to the fact that education takes place in interactions between participants. Although our point of departure is the behaviour of students, consideration must be given to the possibility of appropriate or inappropriate pedagogical practices of teachers or the school, which enable the school environment to either support or eliminate violence or undesirable behaviour. In the concepts of the structural reasons for violence and the elimination of violence at school, it is therefore necessary to always take into account the behaviour of teachers (the school) as an autonomous structural

reason. However, the present study was not intended to investigate specific forms or phenomena of inappropriate pedagogical practices. The assumption is more general: if the school were to develop strategies and instruments for identifying these structural phenomena and the related reasons for violence or disruptive behaviour, and on this basis also to foster moral education and support strategies and procedures for the measures of teachers and other professionals, there would be more likelihood of reducing less appropriate practices among teachers (the school). With the empirical research, we sought to verify whether teachers without additional training distinguish between the behaviour of students according to the different contexts that act as reasons for violence.

The concept has been designed so that the first two reasons (“the child is often exposed to physical violence” and “permissive, very lenient upbringing”) are derived from two opposite models of moral education and attitude towards the child. The student’s behaviour can therefore become “typical”, while in more extreme cases both types of behaviour of adults can contribute to the student’s disruptive behaviour or violence. If the teacher understands the student’s violent or disruptive behaviour from more than just the perspective of an offence, s/he is more likely to have a greater awareness that the elimination of these two opposing reasons for violence also requires two different moral education and support strategies. Furthermore, from the point of view of the school, the individual teacher’s moral education activity is no longer merely an arbitrary consequence of his/her behaviours, but instead becomes systematic.

In this case, we can justifiably speak about structural (and typical) reasons for violence, as student violence is the result of typical patterns of upbringing that can escalate into violence. In a recent meta-study that combines the results of 1,435 empirical studies identifying the relationship between family upbringing patterns and externalised symptoms in children and adolescents, Pinquart finds that harsh control and psychological control, as well as authoritarian, permissive and neglectful parenting were associated with higher levels of externalising problems (Pinquart, 2017). The first and second structural reasons are derived from two different forms of behaviour and parental attitude towards children in the home environment, which is also evident in the aforementioned research. Therefore, in contemporary society, patterns of violence among students who are (or have been) exposed to authoritarianism and violence outside the school environment (the phenomenon of violence resulting from repressive upbringing) are joined by the disruptive behaviour or violence of students resulting from permissive upbringing.

From the 1960s on, this question has been addressed in the context of various research areas, one of which is the three types of authority:

authoritarian, permissive and authoritative (Baumrind, 1967, 1971, 1991; Macoby & Martin, 1983). Behaving according to a particular type of teacher authority or employing different teaching methods can increase or decrease the effects of family upbringing on children (Mugny, Chatard, & Quiamzade, 2006; Paulson, Marchant, & Rothlisberg, 1998; Pellerin, 2005; Quiamzade, Mugny, & Falomir-Pichastor, 2009; Wentzel, 2002).

The first structural reason – the child is often exposed to physical violence – thus derives from the typical situation that the student may be exposed to repeated physical violence in the home environment. Children known to experience violence at home display aggressive behaviour and lack concentration in school (McGee, 2000). If the student is often exposed to physical violence prior to entering school (or also after that) – possibly also associated with other types of violence or dysfunctional behaviour of others in the home environment, which can increase the student's sense of danger – his/her experience with physical violence can lead to the adoption of defensive patterns of behaviour that, on entering school, result in physical violence against other students. The desired change requires that the teacher(s) and the counselling service design *resocialisation strategies* that will accustom the student to socially acceptable behaviours and eliminate the acquired violent or non-functional patterns of behaviour. In order to achieve change, parents or other institutions should, as far as possible, also be involved in the resocialisation process (Twemlow & Sacco, 2012). Instructions in the school moral education plan must also include references to moral education strategies and protocols.

The second structural reason – permissive early upbringing – has well-researched consequences for the child. Such behaviour of adults creates an erroneous level of self-esteem in children and fails to develop their sense of responsibility; they do not take on the symbolic criteria of culture through which they are able to judge what they are entitled to, they develop a minimal respect for authority – or rather, a specific attitude towards it – and they tend to blame others for their own shortcomings (Bernstein, 2013a). To address this case, the school moral education plan should include the preparation of instruments for identifying patterns of behaviour and protocols of conduct, including descriptions of examples of appropriate behaviours for teachers. Parents should be involved in the process of recognition and in achieving the desired change. If the student's behaviour reflects patterns that are typical consequences of very permissive upbringing, the foundation of the moral education strategy is *to establish authority that supports internalisation of the symbolic Law* (Krek, 2015). In the school environment, this concerns the rules and expectations of the school and the teacher (Bernstein, 2013b).



In both cases, the teacher should act in accordance with the authoritative type of authority. One common point of both structural reasons is that the school should commence efforts to modify the violent or disruptive behaviour as soon as possible, immediately after the student enters school or as soon as the problem is detected. These efforts should be incorporated systematically (through the school moral education plan), as violence in younger students can sometimes be regarded as “less problematic”. However, the younger the student is, the more likely it is that violent or disruptive behaviour will serve as an emergency (uncontrolled) exit for the individual structure of subjectivity, which is still being formed. The moral education impact of school can therefore be more permanent. Although the moral education/support strategies are different, they have a typical moral education goal in both cases: that violence or disruptive behaviour is, according to the individual structure of subjectivity, no longer an “emergency exit” for the student.

The third structural reason – in his/her environment, the child has examples of a hostile stance towards people (peers) who are different – is mainly related to wider social or cultural patterns, beliefs and prejudices that can have very different content (social, ethnic, racial, gender and a number of other differences). The school must ethically oppose and eliminate these patterns, beliefs and prejudices, which should therefore have their own place among the structural reasons for violence in the school moral education plan. This issue should be included in the context of appropriate (simple) tools and strategies, providing everything that the teacher needs to identify, counteract and modify these inappropriate values and beliefs. The teacher’s moral education role is to clearly and actively oppose these morally unacceptable values or norms, and to change the prejudices that have been acquired and modify the discriminatory or exclusionary behaviour of the student. The aim is for the unacceptable cultural patterns (values, prejudices, etc.) to no longer be morally permissible, and for students to adopt, as far as possible, common social values and norms (equality, respect for others, solidarity, etc.) that are in line with the concept of human rights (Donnelly, 2013; Krek & Zabel, 2017; Kuhar & Zobec, 2017; McLaughlin, 1995).

The fourth reason – bullying – is contextually, and partly in terms of behaviour (exclusion), associated with the previous structural reasons, but nonetheless needs to be considered separately because a key additional factor is present: the school as an institution that establishes the specific environments within which peer relationships unfold. In this specific context, the inter-peer struggle for dominance, which can take on various forms of violence (Messerschmidt, 2017), is potentially an ever-present possibility. Recognising and

opposing this problem is complex and requires conceptualisation, understanding, recognition instruments and moral education opposition strategies. Contemporary definitions of bullying are derived from Olweus's (Olweus, 1993) definition and emphasise three key characteristics of bullying: (1) acts are intentional, (2) acts are repeated, and (3) there is an imbalance in power between the bully or bullies and the victim (Saarento, Garandeau, & Salmivalli, 2015). These characteristics are recognisable by the typical roles played by students or groups of students in their mutual relations: the perpetrator, the victim, the perpetrator-victim, the observers, etc. The aim is to stop exclusionary or violent behaviour among students and to establish that such behaviour is no longer a morally permissible means of achieving certain goals.

The fifth reason – violence and disruptive behaviour related to the specific characteristics of a student with special needs – is based on the fact that there is already a “structure” of special needs education, social pedagogy, conceptualisation of inclusion, specific expertise and institutional mechanisms that together form an extremely complex context (Florian, 2014; Novak, 2015; Opertti, Walker, & Zhang, 2014; Thomas, 2014; Žic Ralić, Cvitković, & Sekušak-Galešev, 2018). The common assumption of this context is a *structural reason*: the difficulties/deficits of a particular group of students (“students with special needs”) are such (the consequences can also be disruptive behaviour or violence) that the causes must be explored specifically and individually (or, in terms of functional behaviour analysis, the combined effects of physiology, culture and environment), and the moral education and support strategies addressing the student's difficulties/deficits must be adapted to the structural reason.

The sixth reason – abuse of the student in the home environment – has been defined as a specific structural reason associated with violence because, although it can also include characteristics of the other reasons, the context has several particular characteristics (Rudolph & Zimmer-Gembeck, 2018; Ryan et al., 2018). These particularities require attention in the school moral education plan and in the planning of support strategies. Firstly, although the school can detect the problem, other institutions (social services, justice, etc.) have the competencies and mechanisms to solve the problem, the source of which is in the student's home environment. Secondly, although the student may be exposed to various forms of abuse in the home environment, this does not necessarily result in poorer academic success or disruptive behaviour. The school should therefore systematically train teachers to identify signs of abuse. Thirdly, since the abuse does not occur in school, and because it is concealed by the student, it is difficult to recognise the consequences at school. Moreover, when it is recognised it requires professional measures and cooperation of

various other institutions, protocols of conduct, etc. However, teachers should be careful not to jump to conclusions regarding abuse: the results of two studies “suggest standardized assessments are more useful than behavioural observations in identifying abused children in the classroom setting” (De Jong et al., 2014, p. 315). The context is therefore quite different than in the case of students with special needs, although in specific cases there can be some overlap. As in the context of students with special needs, the school is, in cases of domestic abuse, strongly dependant on support that can only be provided by the state or other institutions.

## **Description of the empirical research**

### **Research questions**

With the empirical research, we sought to answer the basic research question of how teachers in primary school recognise violent behaviour and how they act in the areas of the individual structural reasons for violence.

Based on this research question, we established two related questions on different levels (knowledge, viewpoints): 1) Based on descriptions of typical student behaviour, do teachers recognise the specific structural reason for violence and, in view of the determined violent or disruptive behaviour of the student, can they identify which moral education or support strategy would be more appropriate for them to adopt? 2) Do teachers deal with the occurrence of violence by attempting to identify/understand the reasons for its occurrence and working towards eliminating the identified reasons (or, conversely, do they seek to eliminate violence primarily as an undesirable consequence, without recognising and dealing with the reason for violence)?

### **Research methodology**

The empirical research was based on the descriptive method of educational research, with the use of a quantitative and qualitative approach. For the quantitative part of the research, the questionnaire *Factors of Violence* was prepared. Data collection took place in June and early July 2018. The study involved 175 teachers (90.3% women, 6.3% men, 3.4% undefined) from 7 schools in urban and suburban environments in various locations in Slovenia. All of the participants completed the questionnaire. Of the 163 respondents who answered the question about their field of work, 42.3% were first-cycle class teachers, 44.8% were subject teachers, 1.8% taught after-school classes, 4.3% were kindergarten

teachers, 4.9% were counsellors and 1.8% worked in other fields. In the qualitative part of the research, we prepared a semi-structured interview, which was conducted with 29 professional staff (teachers and individual counsellors or principals) in the surveyed schools. The sample of schools and teachers or professional staff was selected randomly on the basis of expressed interest in participating in the survey. The data were statistically processed using the statistical software package SPSS. The presented data from the questionnaire were processed on the level of descriptive statistics.

In the first part of the teacher questionnaire, we selected five structural reasons for violence and devised five different examples of violent behaviour at school (vignettes), with which we obtained answers to the first research question. The second part of the questionnaire sought to answer the second research question. In this part, the teachers responded to statements related to the reasons for violence using responses formulated as Likert-type scales. For two of the statements, the teachers indicated their agreement on a 5-point scale (I completely agree, I agree, I disagree, I strongly disagree and I don't know). For the other statements, the teachers evaluated how often they recognise the stated factors (six structural reasons for violence) as a reason for violence, choosing between the answers: always, sometimes, rarely, never, and I don't know. The results obtained in this way were supplemented with responses based on semi-structured interviews.

The content of the statements that were included in the second part of the questionnaire is evident from the results and interpretation. An outline of the individual examples (vignettes) from the first part of the questionnaire is provided below.

Each of the five examples (vignettes) is designed with regard to the individual structural reasons for violence and comprises three parts: (1) a description of the behaviour, (2) explanations of the behaviour (in the first vignette, the teachers chose from three explanations, while in the other four they chose between two explanations), and (3) a moral education/support action (given two descriptions of moral education actions, the teachers decided which is more appropriate according to the description of the behaviour). The teachers were requested: (1) to read the description of the behaviour or event, (2) to select from the explanations following the description of the behaviour the explanation that best explains the behaviour described, and (3) to choose what they regard as the more appropriate moral education or support action from the two descriptions of moral education/support behaviours that follow.

The following structural reasons for violence were included in the five examples with vignettes: permissiveness or very lenient upbringing (vignette

1); a discriminatory, hostile attitude (vignette 2); bullying (vignette 3); special needs of the student (vignette 4); abuse in the home environment (vignette 5).

## Results

The table below shows the teachers' responses obtained on the basis of the five examples (vignettes).

Table 1

*Identification of the structural reasons for violence and selection of the appropriate moral education action of the teacher with regard to the student's behaviour*

EXAMPLES	Explanation of the described behaviour		Moral education action	
	appropriate	inappropriate	appropriate	inappropriate
Vignette 1 (permissive upbringing)	113 (64.4%)	5 (2.9%) 57 (32.6%)	153 (87.4%)	22 (12.6%)
Vignette 2 (discriminatory, hostile attitude)	162 (92.6%)	13 (7.4%)	170 (97.1%)	5 (2.9%)
Vignette 3 (bullying)	131 (77.5%)	38 (22.5%)	85 (49.1%)	88 (50.9%)
Vignette 4 (special needs of the student)	170 (97.1%)	5 (2.9%)	158 (90.3%)	17 (9.7%)
Vignette 5 (abuse in the home environment)	127 (75.6%)	41 (24.4%)	141 (82.9%)	29 (17.1%)

Note. N = 175

For vignette 1, in which the assumed reason for the student's violence and disruptive behaviour is permissive upbringing, we offered three possible *explanations* of the reasons for this behaviour. We proceeded from the theory of authority, as explained in the theoretical part above, which divides behaviour and attitudes into authoritative, authoritarian and permissive. From the results it is evident that only 2.9% of the teachers selected the explanation describing an authoritative type of moral education, about one third of the teachers (32.6%) chose the explanation describing an authoritarian type of education with elements of physical violence, and almost two thirds (64.4%) selected the correct answer that describes the permissive type of parenting behaviour. Despite the fact that one third of the respondents understood the descriptions of the *reasons for violence* incorrectly, the vast majority (87.4%) of the teachers chose a description of *moral education action* that we theoretically conceived as

an appropriate model of education, which describes an authoritative action of the teacher, as opposed to a less appropriate model of a permissive attitude and behaviour of the teacher.

The results of the other four vignettes show that, given dichotomous choices, the vast majority of the teachers selected the *explanation* of the reasons for violence that we had designated as the appropriate choice: 92.6% of the teachers recognised the non-acceptance of religious and ethnic diversity in vignette 2; 77.5% selected the explanation corresponding to a pattern of bullying in vignette 3; 97.1% chose the explanation corresponding to a behavioural outburst of a student with special needs in vignette 4; and, in vignette 5, 75.6% opted for the explanation stating that the student had been subjected to physical and/or sexual abuse over an extended period in the home environment.

With the exception of vignette 3, the vast majority of the teachers correctly identified the kind of *moral education/support action* that would be appropriate to the described pattern of violence: in vignette 2, 97.1% of the teachers chose the appropriate moral education action to counter violence based on religious and ethnic prejudices; in vignette 4, 90.3% identified the appropriate support actions to prevent the behavioural outburst of a student with special needs; and, in the vignette 5, 82.9% selected the appropriate procedures for the school to determine whether it was a case of physical or sexual abuse.

Only in the case of moral education strategies to deal with bullying (vignette 3) was there a split in the teachers' responses (49.1% versus 50.9%), with a slight majority of the respondents selecting the wrong moral education action, which involved mediation. The description of the behaviour in the vignette depicts a group of students who carry out a typical series of acts of bullying directed at one student. From the description of the violence there is no doubt that it is a case of imbalance of power (on the one hand, the victim, and, on the other, a group of victimisers), which means that mediation between the victim and the group is not an appropriate moral education measure in this case. From the teachers' responses, we conclude that, at least in the schools included in the survey, teachers are not sufficiently familiar with the concepts of bullying and/or mediation as a form of moral education action.

Apart from this exception, the results show that the majority of the teachers *have the appropriate pedagogical knowledge* that enables them, *based on a description of the typical behaviour of students, to recognise the particular structural reason for violence, and, in view of the established violent or disruptive behaviour of the student, to determine which moral education or support strategy would be more appropriate for the teacher to implement.*

The responses to the second research question were first obtained

through two statements to which the teachers responded on a rating scale.

Table 2

*Do teachers deal with the reasons for the violent behaviour of students? Teacher assessments*

Statement	I completely agree	I agree	I disagree	I strongly disagree	I don't know
If certain acts of violence are repeated in a particular student, the teacher begins to deal with the factors (with the reasons) behind these violent events.	71 (41%)	97 (56.1%)	5 (2.9%)	0	0
Dealing with the reasons (with the background, the factors) for repeating incidents of violence is primarily the task of the counselling service, not the individual teacher.	8 (4.6%)	42 (24.3%)	87 (50.3%)	35 (20.2%)	1 (0.6%)

Note. N = 173

The teachers' responses presented in Table 2 show that 97.1% of the teachers agree or completely agree that the teacher begins to deal with the factors (with the reasons) behind violent events if certain acts of violence are repeated in a particular student. The vast majority (70.5%) disagree or strongly disagree that dealing with the reasons (with the background, the factors) for repeating violent events is primarily the task of the counselling service, not the individual teacher. The vast majority of the teachers therefore believe that teachers deal with the reasons for violence and that the responsibility for this should not be shifted to the counselling service.

Table 3 shows the teachers' assessments of how often they recognise the factors listed below as the reason for violence in the case that repeated violence occurs in a particular student.

Table 3

*Assessment of the frequency of recognising the structural reasons for recurring violence in students*

Statement	always	sometimes	rarely	never	I don't know
1) the child him/herself is also often exposed to physical violence ( $N = 174$ )	17 (9.8%)	133 (76.4%)	17 (9.8%)	0	7 (4.0%)
2) permissive upbringing ( $N = 174$ ) (example vignette 1)	52 (29.9%)	106 (60.9%)	9 (5.2%)	0	7 (4.0%)
3) in his/her environment, the child has examples of hostile attitudes towards people (peers) who are different ( $N = 174$ ) (example vignette 2)	34 (19.5%)	106 (60.9%)	29 (16.7%)	0	5 (2.9%)
4) bullying ( $N = 173$ ) (example vignette 3)	20 (11.6%)	110 (63.6%)	36 (20.8%)	2 (1.2%)	5 (2.9%)
5) violence related to the specific characteristics of a student with special needs (even if the student does not yet have a ruling on his/her status as a special needs student) ( $N = 173$ ) (example vignette 4)	17 (9.8%)	121 (69.9%)	30 (17.3%)	1 (0.6%)	4 (2.3%)
6) the student detaches him/herself from the company of his/her peers due to abuse in the home environment ( $N = 172$ ) (example vignette 5)	7 (4.1%)	84 (48.8%)	55 (32.0%)	6 (3.5%)	20 (11.6%)

If we compare the differences in the recognition of the structural reasons for violence only through the response “always”, which expresses complete certainty in recognition, the results show that the teachers are most certain in recognising “permissive upbringing” (29.9%) and “examples of hostile behaviour” (19.5%). A slightly lower level of certainty (approximately 10%) is evident with regard to the recognition of three structural reasons: exposure of the child to bullying (11.6%), the child him/herself is exposed to physical violence (9.8%) and violence related to the specific characteristics of a student with special needs (9.8%). As expected, the least certainty was evident in recognising behaviour as a result of “abuse in the home environment” (only 4.1%).

If the differences in the recognition of the structural reasons for violence are compared in terms of the sums of the assessments “always” and “sometimes”, in first place we again find the recognition of permissive upbringing (90.8%). In second place is recognition of the consequences if the child is him/herself exposed to violence (86.2%), followed by recognition of patterns of hostility (80.4%), violence related to the specific characteristics of a student with



special needs (79.7%) and bullying (75.2%). Least recognisable are again the consequences of abuse in the home environment (52.9%), which also has the highest percentage of “I don’t know” responses (11.6%). With the exception of recognising violence whose structural reason is abuse in the home environment, more than three quarters of the teachers (75.2% to 90.8%) gave the responses “always” or “sometimes” in their assessments of their recognition of all of the other structural reasons.

These results of the quantitative part of the research answer the second research question and show that the vast majority of the teachers believe that teachers deal with the reasons for violence (97.1%) and that they should not shift the responsibility for this task to the counselling service (70.5%). Nevertheless, teachers are less certain in their responses regarding recognising the structural reasons for violence. The highest level of recognition is in permissive upbringing (always 29.9% and sometimes 60.9%), while the lowest level is, as expected, in recognising abuse in the home environment (always 4.1% and sometimes 48.8%). If we take into account the responses always and sometimes for the other structural reasons (the child is exposed to physical violence, the child has examples of hostility to people in his/her environment, violence related to the specific characteristics of a student with special needs, bullying), the results show that teachers, according to their own assessments, mostly recognise the structural reasons for violence.

From the results of the quantitative part of the research, we can conclude that teachers are mostly able to recognise the structural reasons for violence, the only exception being recognition of abuse in the home environment, and that teachers mostly deal with the reasons for violence in the case of repeated violence.

Regarding the question of the recognition of the individual structural reasons for violence by teachers, the responses of teachers and other professionals in the semi-structured interviews confirmed the assessments from the questionnaire, and are therefore not listed here.

In analysing the interviews (with coding), however, a difference emerged in addressing the reasons for violence by teachers in the case of repeated violence. Below we present a summary of how interviewees in individual schools expressed their views on this topic.

School 1 (4 interviews: 3 teachers, 1 counsellor): teachers do not go into the background, as they already feel overburdened without this; they do not view the repetition of an act as a deeper problem; in response to questions as to whether they delve more deeply into the background of violence, they list measures to reduce problems (such as changing the seating plan, etc.); they believe that such problems should be dealt with in more depth and that the

background should be explored, but there is often a lack of time due to the large number of students in the classroom; difficult cases of violence are too complex for the individual teacher.

School 2 (4 interviews: 3 teachers, 1 counsellor): despite recognising the contexts of violence (e.g., domestic violence, different culture, permissive upbringing, identified students with special needs), the view of teachers on the occurrence of violence is not such that they would take measures to start eliminating the reasons for it; they sanction or eliminate acute situations and seek causes of violence (student provocation), but do not try to establish a connection with the reasons; teachers leave difficult situations and dealing with reasons (e.g., when a student is a victim of domestic violence) to the counsellor.

School 3 (1 interview: counsellor): the interviewee believes that the reasons for violent behaviour should be dealt with, but that engaging with the reasons for and background of the violent acts of students is the task of the counselling service, as teachers have too much work with educating students.

School 4 (4 interviews: 3 teachers, 1 counsellor): from the interviews it was clear that it was difficult for the interviewees even to list specific examples of dealing with the reasons for acts of violence.

School 5 (6 interviews: 4 teachers, counsellor, principal): from the interviews with the teachers it was difficult to determine how they deal with the reasons for violence in the case of repeated violence, as they mainly emphasised the procedure (referring cases to the school counselling service); the school counsellor pointed out that teachers do not have enough knowledge to arrive at conclusions about the reasons for violence, and, moreover, they avoid engaging with the reasons.

School 6 (4 interviews: 3 teachers, 1 counsellor): in many cases the background of violence is so complex that the school does not have the appropriate competencies to take effective action; the counsellor believes that teachers do not have enough time (congested curriculum) or competent knowledge to explore the background to the problem of violence.

School 7 (6 interviews: 3 teachers, 2 counsellors, principal): responding to the question of dealing with the reasons for repeated violence, a first-cycle class teacher stated that her students did not behave violently; the two subject teachers believed that investigating the background can worsen the situation; teachers are not sufficiently trained and certain behaviour can therefore develop more than it would otherwise; some teachers are better equipped to identify reasons and deal with violence than others.

If we compare the responses from the interviews with the results of the quantitative research, we can conclude that the latter reflect the teachers' beliefs

about how they should behave, that is, the teachers perceive dealing with the reasons for violence as their task (not simply as the task of the counselling service). However, the responses in the qualitative part of the research do not confirm that, in cases where certain acts of violence are repeated in a particular student, the teacher begins to deal with the factors or *reasons* behind these violent events; they probably do so in individual cases, but not systematically. This approach is not the way the teacher works; quite the opposite. Certain explanations of the various professionals interviewed, as listed in the above summaries, suggest why they are unable to focus on the reasons for violence.

### **Conclusion: Pedagogical knowledge of teachers in relation to structural reasons for violence, but inadequate conceptual solutions and state support**

The responses to the first research question demonstrate that teachers in Slovenia have the kind of pedagogical knowledge that enables them not only to engage with the immediate causes of violence or disruptive behaviour of the student, but to try to explain the student's behaviour. Although not systematically, teachers can explain such behaviour with structural reasons that require a broader pedagogical knowledge and understanding. In most cases (four out of five examples), the majority of teachers (87.4%, 97.1%, 90.3%, 82.9%, respectively) also have adequate pedagogical knowledge to correctly choose the appropriate moral education action.

On the basis of the questionnaire, the responses to the second research question show that the vast majority of teachers believe that teachers deal with the reasons for violence and are aware that they cannot and should not simply shift this responsibility to the counselling service. However, the responses from the interviews show that, despite the fact that teachers perceive dealing with the reasons for violence as their task and are aware of the importance of doing so, they often do not act according to this perception. They give several reasons for this: the number of students in the class, resulting in the teacher being unable to focus only on individual students; the need for the teacher to devote all of his/her available time to teaching, not to moral education issues and violence; the lack of expertise among teachers in the areas of the complex issues of violence, which leads teachers to avoid the problem due to uncertainty, while more difficult cases are regarded as the task of the counselling service, etc. In addition to the reasons given by the interviewees, we would emphasise that the reasons for the problems of teachers are not to be found only in the teachers themselves, in their pedagogical knowledge and in the heavy workload of teaching; we see

the problem primarily as a systemic and conceptual one. On the level of the school system, the problems begin with the legal instructions for the preparation of the “school moral education plan”, which do not direct schools to deal with the structural reasons for violence. The difficulties then continue with a lack of professional support in this area for schools and teachers on the part of state institutions.

Teachers have pedagogical knowledge that enables them to “structure” their understanding of occurrences of violence. However, countering occurrences of violence would be more effective if schools instituted the systematic differentiation of the structural reasons for violence and countered them with moral education and/or support strategies appropriate to the determined differences. In the context of the Slovenian school system, this would entail each school incorporating the structural reasons for violence as a support point in the school moral education plan and, depending on the content of the structural reasons for violence, preparing descriptions, instruments, education and/or support strategies, protocols of conduct, etc. that teachers and other professionals would actually be able to apply in practice. Schools do, of course, need ongoing professional support in this regard, which can only be provided by the state and various specialised institutions.

In the theoretical part, we explained how such an approach differs from certain existing moral education and support approaches. However, existing approaches – ranging from general preventive programmes, such as the creation of an inclusive school climate, to specialised approaches, such as functional behaviour analysis – can, of course, complement the school’s moral education and support strategies within the frameworks of the structural reasons for violence.

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## Biographical note

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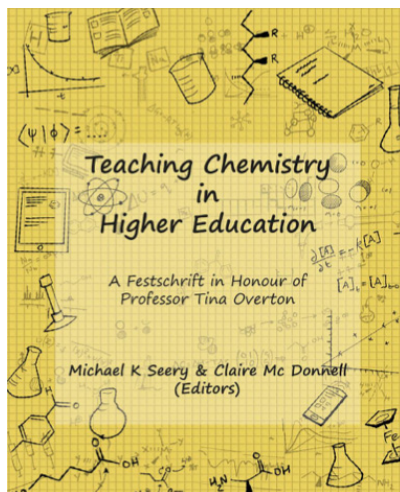
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Michael K Seery and Claire McDonnell (Eds.), *Teaching chemistry in higher education*, Creathach Press, 2019; 452 pp.; ISBN: 978-09-928-2331-3

Reviewed by IZTOK DEVETAK<sup>1</sup>

The book 'Teaching Chemistry in Higher Education' is a compendium of different chapters authored by respected high education chemistry teachers and chemistry education researchers from the United Kingdom, Ireland, and Australia. In addition, this book is also dedicated to Prof. Tina Overton, one of the most prominent chemistry education researchers. Authors of the chapters came from the aforementioned countries, where Prof. Overton made a significant impact as a high education scholar and researcher, before retiring last year. This book was edited by two distinguish chemistry education researchers, Michael Seery and Claire McDonnell. Seery is a Professor of Chemistry Education and Director of Teaching at the School of Chemistry at the University of Edinburgh. He is also editor-in-chief of one of the most respected international journals in the field of chemical education research, *Chemistry Education Research and Practice*, published by the British Chemical Society, with an impact factor of 2.29 in 2019. Claire McDonnell is an Assistant Head of the School of Chemical and Pharmaceutical Sciences at Technological University Dublin.

The forward to the book, by Professor Overton, illustrates her professional development in the field of chemical education research. Because her research interest in the great portion of her professional career was involved working memory and problem-solving abilities, laboratory teaching and learning, and graduate employability, she gives the readers in this section of the book some theoretical background to these topics (Overton, 2019). Altogether, the book comprises 452 pages.



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In the introduction to the book, the editors attempt to discuss its relevance, not just as a compilation of pseudo-papers but a work that can be useful, inspiring, helpful, and pragmatic. They also elaborate how the authors of the specific chapters were selected and that an essential aspect of the book is to show to the readers ‘their knowledge on a particulate aspect of their own innovative work in the teaching of chemistry’ (Seery & McDonnell, 2019).

Each of the 29 main chapters begins with the aim of the chapter and with the ‘Influence of Professor Tina Overton’ on the author(s) or content of the chapter. The main body of each chapter comprises some theoretical introductions of relevant literature and theory for the reader to understand its framework. In continuation, some results are presented, illustrating author(s) work in the context of teaching different chemistry courses in higher education implementing specific teaching and learning strategies. Toward the end of each chapter, there is a section about implications and adaptability; however, the author(s) of each chapter also attempted to suggest some guidelines for readers from different contexts to use the described teaching and learning approaches in their lecture rooms or laboratories. Some chapters are supplemented with further reading materials on the book’s website ([overtonfestschrift.wordpress.com](http://overtonfestschrift.wordpress.com)). The unique structure of each chapter indicates that this book is not just a collection of different teaching and learning approaches that individuals use in their professions; rather, it offers a great source of opportunities to upgrade and modernise the tertiary chemistry education globally.

Reading the book, one can get an impression that the chapters can be categorised into six groups, although the editors did not make this assumption, and they probably had their reasons, but putting the chapters into specific groups would probably help some readers find the relevant information more easily. However, this review tries, more or less, to do so, so perhaps this can contribute to the higher clarity of the book for potential readers.

One group of chapters comprising Kristy Turners’ chapter entitled ‘**A framework to evaluate the transition to undergraduate studies in chemistry**’, David Reads’ et al. entitled ‘**Nurturing reflection in science foundation year undergraduate students**’, and Suzanne Fergus’ chapter entitled ‘**Using PeerWise to support the transition to higher education**’, deals with the transition from secondary to tertiary education. This aspect is quite important, because while it is often taken for granted, it can be quite traumatic in some cases, leading to students failing the first semester or even the first year of their university education.

The second group of chapters discusses the organisation of the teaching of chemistry at the university level. The first chapter, by Aishling Flaherty *et al.*

entitled **‘Working with chemistry graduate teaching assistants to enhance how they teach in the chemistry laboratory’**, and the second one, by Christopher Randles entitled **‘Developing reflective practice with graduate teaching assistants’**, deal with the importance of good graduate teaching assistants’ education in pedagogy, so that they can apply laboratory work adequately. These aspects are not uniform, because in Eastern European countries, for instance, graduate students are not usually employed at the university to offer laboratory courses. These courses are taught by teaching assistants that may have already finished their doctoral degrees and remain employed at the university, offering laboratory courses as long as they want. For that reason, teaching assistants are well qualified to do their work, and the constant education of new ones is not necessary. In contrast, the PhD programmes in other countries are different, and students are tightly engaged in undergraduate programmes.

The third group of chapters can be identified as the richest in content and deals with different teaching approaches that can be applied at the university chemistry education. All authors have significant in teaching courses at the university, so their contributions are most valuable. The chapter by Dylan Williams entitled **‘Context- and problem-based learning in chemistry in higher education’**, and Christine O’Connor’s **‘Approaches to context-based learning in higher education chemistry’** attempt to emphasise the importance of context-based teaching and learning, the relevance of which is also indicated for university chemistry education not only at the primary and secondary levels, where the significance of making chemistry relevant for students is so essential. Peer instruction can be an interesting activity in chemistry lectures or lab work. Simon Lancaster *et al.* in their chapter entitled **‘Peer instruction as a flexible, scalable, active learning approach in higher education’** and Gita Sedghi in her chapter entitled **‘A sustainable peer assisted learning model for chemistry undergraduates’** discuss the relevance of students’ teaching their peers specific content that they find difficult and hard to understand. For that reason, active learning approaches are one of the most important innovations that every university teacher should consider and apply in their lecture rooms or laboratories.

Two chapters deal with the importance of using numbers in chemistry. This means that learning chemical calculations is an important aspect for prospective chemists. Some students have difficulties in applying mathematics to chemistry and, for that reason, Nimesh Mistry’s chapter entitled **‘Diagnosing and addressing the issues faced when students learn stereochemistry’**, Dudley Shallcross’s chapter entitled **‘A pre-arrival summer school to solve the maths problem in chemistry’**, and Daniel Southam’s and Brenda Rohl’s chapter with

the title '**Computational thinking in the chemical sciences curriculum**' can be beneficial for all university chemistry educators. However, students being able to present their work is an essential aspect of someone's learning. For that matter, Katherine Haxton describes innovative approaches to effective students' presentations in the chapter entitled '**Undergraduate screencast presentations with self-, peer-, and tutor-assessment**'.

Another strong field in chemical education at all levels of education is laboratory work, applying inquiry strategies and implement research activities. In light of this, at least eleven chapters of this book deal with different aspects of lab, inquiry, or research activities in chemistry teaching and learning. Pre-lab activities are an important part of tertiary chemical education, and they are described in Dino Spagnoli's et al. chapter with a title '**Designing online pre-laboratory activities for chemistry undergraduate laboratories**'. For pre-lab activities, technology can be used, but different ways of technological solutions should be implemented in chemical education. Barry Ryan's chapter entitled '**Integration of technology in the chemistry classroom and laboratory**' gives some suggestions on how to do this effectively. In contrast, some basic laboratory skills are also important, students have to develop them, and Michael Seery's et al. chapter entitled '**Teaching and assessing technical competency in the chemistry laboratory**' discusses this topic, while Angela Ziebell's et al. chapter with a title '**Overturning a laboratory course to develop 21st century skills**' goes even further.

Four chapters deal with **inquiry-based learning activities in chemistry education** at the university level. These chapters are Jane Essex's '**Implementing inquiry-based learning activities in chemistry education**', Patrick Thomson's et al. '**Introducing elements of inquiry in to undergraduate chemistry laboratories**', Jennifer Burnham's '**Developing student expertise in scientific inquiry**' and Natalie Rowley's '**Developing inquiring minds through learning chemistry**'. However, students have to learn how to lead research groups because they could find themselves in situations after graduation in which these competences would be requested, so Jenny Slaughter's and Lynne Bianchi's chapter entitled '**Student-led research groups for supporting education research projects**' would be a valuable resource.

In the end, reporting of your finding in lab work is also important so Natalie Capel's et al. chapter '**Developing scientific reporting skills of early undergraduate chemistry students**' could give the reader some useful insights. Because internationalisation is an important aspect of tertiary education, providing effective chemistry courses for international students should be an asset, so Julie Hyde discuss this important issue in her chapter entitled '**Design of a**

### **three year laboratory programme for international delivery’.**

Because Professor Overton’s work extensively dealt with problem-solving, some chapters about this topic are also presented, such as Elizabeth Yuriev et al. with the chapter ‘**Developing problem-solving skills in physical chemistry**’ and Gwendolyn Lawrie et al. ‘**Collaborative, scenario-based, open-ended, problem-solving tasks in chemistry**’.

Employability competences for chemistry students become important after they graduate and start applying for a suitable job. For that reason, employability skills ought to be developed during students’ tertiary education. The chapters ‘**Student-led interviews to develop employability skills**’ by James Gaynor, ‘**Implementing community engaged learning with chemistry undergraduates**’, by Claire Mc Donnell and Vanessa Murphy and ‘**Developing business and employability skills for undergraduate chemists**’ by Christopher Pask and Samantha Pugh illustrate this important issue.

It can be concluded that this book is not just a tribute to Professor Overton, but also a great practical guide for all involved in tertiary chemistry education; it also gives some insights into tertiary chemistry education research.

In the end, I would recommend this book to young and not-so-young university teachers to learn how to teach chemistry effectively at the tertiary level, especially because they usually do not have pedagogical education and act on intuition and past experiences during their tertiary education, adapting (more and less successfully) strategies from professors that they find effective. It is also necessary to emphasise that this book can be a valuable source of information to lower and upper secondary school chemistry teachers, although the examples are from higher education, and they usually were part of some sort of pedagogical education in their pre- and in-service teacher education programmes.

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Mary Douglas, *Kako mislijo institucije* [How Institutions Think], University of Ljubljana, Faculty of Education: 2018; 156 pp.: ISBN: 978-961-253-223-9

Reviewed by METKA KNEŽ<sup>1</sup>

This monograph is a Slovenian translation (*Kako mislijo institucije*, 2018) of the original book titled 'How Institutions Think' (Frank W. Abrams Lectures), written by the social anthropologist Mary Douglas. The author published the book in 1986 after she lectured at Syracuse University Press in New York.

Mary Douglas was one of the first women to study social anthropology in the 20<sup>th</sup> century in the United Kingdom. At that time, women could only be educated for so-called women's professions: nurse, carer, social worker, homemaker, assistant teacher, and similar. Studies in the fields of anthropology, sociology, philosophy, medicine, and research fieldwork were dominated by men. She did not follow the social norms of that time, and she enrolled at the University of Oxford, from which she graduated and obtained a doctorate. Douglas was very devoted to her work, although she was neglected and discriminated against because of her gender. In order to better understand the contents of the book, we must first look at her life and career.

Douglas came from a traditional and conservative family. Her father was employed in the colonial administration, and her mother was from a very devout Catholic family. Her mother died early, so Mary and her sister were taken care of by her father and mother's parents. Mary soon began to attend a monastic school, which was led by Jesuit nuns. Here, for the first time, she encountered the strict orders and the rules of a total institution. Nevertheless, she felt very safe and devoted herself to education and reading the various books that the nuns had.



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Afterwards, she enrolled at the University of Oxford, where she attended high school and obtained a master's degree. She then suspended her studies and was employed in the colonial administration for some time during the Second World War, where she felt very homesick because of the work that her father sometimes used to do. After the war ended, she studied social anthropology, learning from the prominent anthropologist Sir E. E. Evans-Pritchard. She then carried out the first fieldwork at the International African Institute in the Belgian Congo. Her work was soon interrupted because she married and dedicated herself to motherhood. In addition to caring for her family, she taught at the University College in London and wrote many interesting books.

Presently, there are three books translated into the Slovenian language: 'Purity and Danger', 1966 (*Čisto in nevarno*, 2010), 'Thought Styles', 1996 (*Miselni slogi*, 1999) and 'How Institutions Think', 1986 (*Kako mislijo institucije*, 2018). Although she wanted lectures with doctorate students, this was not possible for her, due to institutional sexism. In 1977, she went to the United States, where she lived and worked for eleven years. She worked as director of culture research at the Russell Sage Foundation, and in 1981 she moved to Northwestern University as a humanities professor at Avalon Foundation. During this time, she also wrote about how far institutions thought and explored the rise of neoliberalism and related socio-political processes in the United States and the United Kingdom. She noted that American society was much more open to women and their work in society than in the United Kingdom. She was forced to leave and return to her homeland, where she found she could no longer work at a university as a full professor because of her age.

As mentioned, the book was the result of the invitation of the University of Syracuse, where the author delivered a series of six lectures. Upon reading it, we can see that the author connects research work in the field and her personal experiences. When dealing with institutions, she relies on various authors and theories in other disciplines: biology, medicine, sociology, philosophy, and similar. In particular, she relied on the sociological theories of Durkheim, Fleck, and Weber, among others.

In nine chapters, readers are given an overview of the treatment of institutions and the attitudes of society to them in various aspects. In the first chapter, 'Institutions Cannot Have Minds of Their Own', the author shares with us her views on solidarity. She discusses many issues: solidarity in societies, confidence in mutual help, fear, expectations, mistrust, and hatred. She thinks that members of society are contributing rationally to solidarity as far as they think they benefit from it and that they can expect it when they need it. In the next two chapters, titled 'Smallness of Scale Discounted' and 'How Latent



Groups Survive', the author explains how small-scale groups, also referred to as 'latent groups', work. An individual who chooses to be part of a group will contribute to the group for the public good. At the same time, the rules of latent groups are anticipated by the individual to make rational decisions so that they can enjoy what the common good is. At the same time, the potential for exploiting public good is reduced by increasing the number of members of the community. The author explains that each group of the community, especially the small-scale group, operates according to the established group dynamics, in which the individual's interests are subordinated to the common good. She supports her claims with examples of NGOs, the military, and the police, or with different community blocs such as small tribes and sects. According to her, in these groups, the interactions between action, control and the quota are carried out without individuals being forced to comply. The operation of a small-scale group is explained using a functional theory, which explains how group processes within a group are formed, interwoven with the relationships of individuals as members of the group, thus forming a common mindset. In doing so, the author recognises the mechanisms of rules and relocation within a group of participants to whom they must be subordinate, which encourages the members to subordinate themselves to the process of action of the group.

Douglas believes that institutions are founded on analogy. In the fourth chapter, she explains that social grouping depends on justifications in reason and in nature. Many institutions are defined in terms of what the world or nature is really like. For example, schools are seen as institutions that socialise, yet they are also understood as an allocating institution operating under societal rules that allow them to directly confer success and failure in society quite apart from any socialising effects. The institutions also do the classifying for they: "systematically direct individual memories and channel our perceptions into forms that are compatible with the relations they authorise. They fix processes that are essentially dynamic, they hide their influence, and they rouse our emotions to a standardised pitch on standardised issues '(1986: 92).

We can see that institutions play an important and productive role in our lives. At some point, they can play a repressive role too. Alternatively, vice versa, institutions that are considered repressive can play a productive role in protecting individuals; for example, the police, which is a repressive body, responds to the call of the victim of a violent person who has beaten her or otherwise injured her. When the police arrive at the place of the event, they have the right and the duty to restrain the perpetrator and remove the victim in order to protect them.

However, the role of classification is somewhat different regarding large total institutions, such as prisons, correctional homes that act on the repression of individuals and their elimination, if they do not conform to the rules of the institution or the broader social norms. We know that institutions have the right and the power to decide on the life and death of individuals of the members of society, without them being aware of it. The author explains her thesis in the final chapter 'Institutions Make Life and Death Decisions', with the concept of justice through various examples. The first example of how justice is perceived is how individuals often leave important and unpopular decisions to the institutions, instead preferring to deal with irrelevant things or details. The next example of how justice is perceived is shown through the treatment of individuals who commit an offence or how their actions are otherwise morally disputable in a particular company. A person from a lower class caught stealing will be severely punished while a person from a higher class who may have committed a more serious offence will receive a milder sentence. Furthermore, a person who offends against someone from a higher class will be severely penalised.

The most significant current problem of perceiving justice is that it is perceived through the theory of economics – justice is perceived with the case of social affairs, especially when the government is prosperous and has the ruling class power, capital and means of survival. When there is positive growth, there is enough for all members, although ordinary people have less than those who decide. However, when the crisis arrives, and the austerity measures need to be taken, these measures are first introduced at lower classes of the members in the company, with the promise that these measures will be only temporary. All the while, the ruling layer retains its standard of living and works as it did before the crisis. The researcher, who followed the dynamics of perceived justice and social relations before, during, and after the crisis, expected that members of society who lost their relatives because of hunger will cultivate a reluctance to the ruling class because they did not give them more assistance. However, he was surprised to find that this was not the case, since the members again took up the positions and functions of fulfilling social tasks as before the crisis. In the cases described, the author points out that equity should not be equated with the notion of equality and that the mechanism of institutions works through visible and invisible processes in a way that is followed by all who are part of the institutions or are subordinated to them.

The topic of the presented book is interesting in many ways. It can be used for explaining and understanding the structure and logic of, and also a type of education system in a chosen country. In Slovenia, for example, we have more or less prevailing public education system, financed by the state. The

reason behind it is a strong belief in the public good, shared by the majority of the population<sup>2</sup> and mirrored in the laws regulating many social subsystems. At every level, our education system is organised in the form of an institution. A common example of the functioning of institutions in the system of education is the recognition of the organisation of a particular school or kindergarten, which is hierarchically oriented. The employees in a school or kindergarten must be subordinated to the system that governs the institution. This can be, on the one hand, stressful for many who differ from the majority in the collective and must decide whether or not to accept the rules and opinions of the majority although system guarantees them certain kind of autonomy in their field of expertise. On the other hand, the same system can be a haven for many employed in the institution, where the logic and the practices of the institutions will be protected when, for example, an appeal or protest arises at the expense of his or her work or the lack of understanding of his or her position in the profession.

In conclusion, Douglas gives a positive and objective view of the institutions that are, in fact, part of every society. At each point of life, we encounter all the members of society. How they affect our lives depends on how we perceive them and in which cultural and environments we are. Although the author of the book itself was marked by exclusion and discrimination in her professional and scientific research, this did not affect her devotion to research, study and writing, thus raising awareness of the professional and general public, leaving an indelible echo on a global and European scale.

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2 This can, of course, cause a problem for those who do not share the same opinion and believe that we should have more private schools. We are currently witnessing a political clash regarding the financing of private schools in Slovenia.

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