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CONTRIBUTION OF COOPERATIVE LEARNING STRATEGIES TO THE IMPROVEMENT OF THE QUALITY OF STUDENTS' NATIVE LANGUAGE KNOWLEDGE

Abstract: A successful application of cooperative learning in mother tongue teaching, from the point of view of improving the quality of students' knowledge, requires great didactic and methodical expertise of teachers in group forming, cooperative task structuring, basic principles of cooperative learning, etc. The theoretical starting point of this paper is represented by the theory of social interdependence, Slavin's integrative model and revised Bloom's taxonomy of knowledge. In this paper, we will present the results of the ex-post-facto research conducted to examine whether and to what extent the application of cooperative learning can improve the quality of factual, conceptual and procedural knowledge of students in their mother tongue. On a systematic sample of students of the fourth grade of primary schools from 14 districts in Serbia ($n = 720$), two knowledge tests were applied for the initial and final measurement. The results of the research

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showed that various practices of the application of strategies of cooperative learning in the current teaching of the mother tongue contribute to the adoption and sustainability of students' knowledge, mostly factual, and then conceptual and procedural.

Keywords: *quality of knowledge, cooperative learning strategies, social interdependence theory, native language, junior primary school students.*

Introduction

Modern education strives for students to acquire quality knowledge for continuing their education and later for participating in professional work. Contemporary theoretical knowledge (Richards & Rodgers, 2014) and research results (Ching-Ying & Hui-Yi, 2013; Durukan, 2011; Gupta & Ahuja, 2014; Jalilifar, 2010; Mengduo & Xsiaoling, 2010; Madhu & Jyoti, 2014; Ofodu & Lawal, 2011; Pan & Wu, 2013; Stevens & Slavin 1995a; Stevens & Slavin 1995b; Stevens, 2003; Shafqat & Rana, 2014; Teng, 2022) affirm the potential of cooperative learning in achieving various goals and outcomes of language teaching (e.g., vocabulary knowledge, grammar, listening, reading comprehension). Studying the educational contributions of cooperative learning in mother tongue teaching has multiple importance and justification. First, through the teaching of mother tongue, students acquire grammatical and spelling knowledge and develop competencies of vital importance for continuing education and future life (Petrovački, 2008), and for the sake of proper oral and written expression, interpretation of literary works from the national and world heritage, nurturing of tradition and culture, as well as the development of interculturality (*Regulations on the Teaching and Learning Program for the Fourth Grade of Primary Education and Upbringing*, 2019). Through mother tongue teaching, students are introduced to history, literature and tradition, which enables them to better understand themselves, their origin and identity. Second, in the fourth grade of primary school, the role of reading changes from a process of text decoding to a means of encouraging development (Pejić, Plut, Moskovljević-Popović, Nikolić, 2009). Third, some research (Ilić, 2016) indicates that teachers in the younger grades of primary school mostly apply cooperative learning in the teaching of the mother tongue. As a fourth reason, we highlight the fact that the results of international studies (Baucal & Pavlović Babić, 2010; Baucal, 2012; Pavlovic Babic & Baucal, 2011; Randelović, Djukić, Karalić, Caprić, Radulović, 2023) and national research (Brborić, 2015) indicate the need to improve the quality of students' knowledge of their mother tongue. Although the achievements of students in Serbia are above the international average in the reading competence survey (PIRLS), they are significantly lower than the reference values for all four levels of reading literacy (Randjelović et al., 2023). Based on such knowledge, there was a need to consider the educational value of cooperative learning in teaching of the mother (Serbian) tongue that is, how teachers understood and incorporated cooperative learning in their own teaching work. The

referential theoretical starting point of the research integrates the propositions of the theory of social interdependence, Slavin's integrative model of cooperative learning and revised Bloom's taxonomy of knowledge. Since the basic tenets of the theory of social interdependence are included in the integrative model of Slavin, in further text they will be presented within that model.

The use of the term cooperative learning in scientific literature, practice and everyday speech indicates different approaches, especially regarding its content. According to one definition (Johnson & Johnson, 2003), cooperative learning refers to the use of small groups in teaching to maximize the learning of all group members, under conditions that include the following principles: positive interdependence, individual responsibility, enhancing face-to-face interaction, practicing social skills and evaluation of group processes. Slavin defines cooperative learning "instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content" (2010: 338). Numerous cooperative learning methods and strategies are distinguished in literature, such as: team-supported teaching, cooperative reading and writing, teams-games-tournaments, achievement teams, puzzle, puzzle II, puzzle III, cooperative learning structures, learning together and alone, constructive controversy, pro or con argumentation, group research, reciprocal teaching and classroom workshop. It is almost impossible to opt for only one approach and cover all cooperative learning strategies in a given content. Starting from that, in this work cooperative learning means teaching and learning strategies that are based on asymmetric and symmetric interactions in which students in groups or in pairs, under the guidance of the teacher or in cooperation with him, teach and learn in order to achieve the common goals of teaching in social-affective and cognitive domain of student development (Semiz & Antonijević, 2022). This takes place under conditions that include the following necessary elements: positive interdependence, individual responsibility, enhancing face-to-face interaction, practicing social skills, and valuing group processes (Johnson & Johnson, 2003).

Slavin's integrative model of cooperative learning

Slavin's integrative model of cooperative learning (Slavin, 1996; Slavin, 2014) represents a relevant theoretical starting point for understanding the educational contributions of cooperative learning, since it functionally connects the tenets of four psychological theories: the motivational perspective, the social cohesion perspective, the developmental perspective, and the cognitive elaboration perspective. Slavin (1996) rightly points out that the influence of cooperative learning on students' academic achievements is conditioned by the students' internal and external motivation, interpsychic and intrapsychic processes. In support of this, he states the tenet of a dialectical relationship between motivational and cognitive factors because

motivation triggers different cognitive processes, but activated cognitive processes will improve the learning process and its results.

Motivational perspective theorists (e.g., R. Johnson, D. Johnson, R. Slavin) believe that different ways of structuring positive interdependence motivate students to help each other and exert more effort to achieve the group's common goals. In addition to the above, cooperative learning strategies should be designed so that students perceive that their personal success is conditioned by the success of other group members (positive interdependence), show personal responsibility for their own and the group's success (personal responsibility), support each other and encourage each other in achieving a common goal (improving face-to-face interaction), demonstrate the social skills needed to achieve quality interaction (practice social skills) and actively participate in improving mutual relations and group work (group processing) (Johnson & Johnson, 2003; Johnson & Johnson, 2009).

According to *the social cohesion perspective*, the effectiveness of cooperative learning on student achievement is mediated by group cohesiveness through team building and group self-evaluation during and after group activities (Slavin, 1996). Social cohesion theorists (e.g., E. G. Cohen, E. Aronson, Y. Sharan, S. Sharan) emphasize the idea that students help each other learn because they care about others and want others to succeed, thereby emphasizing more internal incentives in regulating behavior.

Developmental theorists (e.g., J. Piaget, L. S. Vygotsky) emphasize cognitive factors and peculiarities of social interaction between peers in explaining the effects of cooperative learning on academic achievements. According to Piaget, cognitive conflict promotes student achievement because students' different viewpoints, resulting from the discussion of a shared task, cause cognitive imbalance. "According to this point of view, such an effect of cooperative learning occurs exclusively through symmetrical interaction, because the understanding of other people's ideas is limited by the level of development of cognitive structures, which is why more developmentally advanced ideas could not lead to cognitive conflict" (*Lexicon of educational terms*, 2014: 331). Slavin sees a significant contribution of Vygotsky's theory, first of all, in the concept of zone of proximal development and the formative influence of asymmetric interaction (collaborative activities) on learning.

The cognitive elaboration perspective emphasizes the role of cognitive factors and processes for the effectiveness of cooperative learning. *Cognitive elaboration theorists* (e.g., D. Dansereau, N. Madden, R. Stevens, N. Webb) assume that elaborations and explanations in peer tutoring are responsible for students' academic achievements. Under the influence of this theoretical perspective, numerous strategies of cooperative learning in language teaching have been developed, which imply that students in the role of a teacher or a tutor directly teach each other, as well as the strategies for teaching specific and concrete cognitive strategies for understanding the text.

Bloom's Taxonomy of Knowledge Revised

Regarding the quality of students' knowledge, there are very different taxonomies in the scientific literature (Anderson & Krathwohl, 2001; Bloom, 1981; Churches, 2010; Gagne, 1985; Krathowl, 2002). Anderson and Krathwohl (Anderson & Krathwohl, 2001, Krathowl, 2002) revise Bloom's taxonomy by including two dimensions: *knowledge* (what the student knows) and *cognitive processes* (how the student learns to know). This taxonomy was developed under the assumption that the student's knowledge is arranged hierarchically because mastering higher levels of knowledge implies that the student has mastered all levels of cognitive processes and qualities of knowledge that are below that level. In the revised version of the taxonomy, the most significant structural change is the introduction of four dimensions of knowledge (factual, conceptual, procedural and metacognitive), on the continuum from concrete to abstract.

Factual knowledge – represents the lowest quality of knowledge and includes the basic elements that students must know in order to be familiar with the discipline and to solve the problems related to it (Anderson & Krathwohl, 2001, Krathowl, 2002). This type of knowledge includes knowledge of terminology and specific details, and involves facts and definitions mediated by the school curriculum. Knowledge of spelling rules, knowledge of important literary works, naming of main characters are typical examples of this type of knowledge in mother tongue teaching. The role of factual knowledge in building a student's knowledge system is reflected in the fact that it represents a means of further learning and discovering new thing, knowledge and more complex cognitive processes (Antonijević & Vujisić Živković, 2014; Uzelac, 2012).

Conceptual knowledge – involves understanding the interrelationships of basic elements within a larger structure that allows them to function together and includes knowledge of classifications and categories, principles, generalizations, theories, structures and models (Anderson & Krathwohl, 2001, Krathowl, 2002). At the level of conceptual knowledge, the student is able not only to name, but also to understand and explain classifications, categories, principles, generalizations, theories, structures and models specific to the domain of the Serbian language. This quality of knowledge implies memorization and understanding of facts and generalizations mediated by the school curriculum. Determining the type of words and verb forms in a sentence are the typical examples of conceptual knowledge in mother tongue teaching.

Procedural knowledge – represents knowing how to do something, mastering research methods, procedures, techniques, criteria for using skills (Anderson & Krathwohl, 2001, Krathowl, 2002). At the level of procedural knowledge, the student is able to apply knowledge (how to) even outside the context in which he acquired it, and also controls research methods, procedures, techniques, criteria for using skills (e.g., writing according to grammar and spelling rules). This type of knowledge

includes knowledge of domain-specific skills and algorithms, domain-specific methods and techniques, and knowledge of criteria for the adequate selection and use of procedures. A student whose knowledge is at this level can compare the offered information (determine similarities and differences), classify (organize elements into categories based on the considered characteristics), apply them in a new situation; draw a conclusion from them, and the like. A typical example of procedural knowledge in mother tongue teaching is writing according to grammar and spelling rules.

Metacognitive knowledge – represents the highest quality of knowledge and implies knowledge of cognition and awareness of one's own cognition. This quality of knowledge is characterized by the student's personal, creative, autonomous attitude towards the content being learned and towards their own cognitive processes during learning. A student who possesses metacognitive knowledge takes a critical attitude towards the content or his own learning, evaluates its value and transforms it into a new whole. In language teaching, knowledge of reading strategies is a typical example of this type of knowledge.

Starting from the position that the quality of knowledge should encompass the scope and depth of adopted facts and generalizations about social reality, and taking into account the specificity of the knowledge system in the teaching of mother tongue, we believe that the quality of student knowledge should be operationalized through two important properties: level of adoption and sustainability of factual, conceptual and procedural knowledge. While the first property indicates the degree to which the student has adopted different levels of quality of knowledge, the second property indicates that the adopted levels of knowledge quality are not of a temporary nature, but that they last and are maintained over a certain period of time. For these reasons, by the quality of knowledge in this paper we mean *the adoption and sustainability of different levels of knowledge (factual, conceptual, procedural), which are organized hierarchically (higher levels of knowledge include lower levels of knowledge) and are based on different cognitive processes (remember, understand, apply, analyze, evaluate and create).*

Methodology

Aim and hypotheses of the research. The general goal of the research is aimed at determining the contribution of cooperative learning in improving the quality of students' knowledge of their mother tongue (Serbian) in the existing practice. In order to realize the set goal, we determined the following research tasks: (a) Determine the level of adoption and sustainability of factual, conceptual and procedural knowledge of students in their mother tongue (Serbian) which they studied through cooperative learning; and (b) Determine whether there are differences in the level of adoption and sustainability of factual, conceptual and procedural knowledge of students in their mother tongue (Serbian) which they studied through cooperative learning.

In accordance with the results of recent and related research, two research hypotheses have been put forward: (1) General hypothesis: The application of cooperative learning in the existing practice contributes to the adoption and sustainability of the quality of students' knowledge of their mother tongue (Serbian). (2) Specific hypothesis: There are differences in the level of adoption and sustainability of factual, conceptual and procedural knowledge of students in their mother tongue (Serbian), which they learned through cooperative learning.

Research sample and procedures. Seven hundred and twenty fourth-grade primary school students from fourteen districts in Serbia, who studied through cooperative learning during the 2016/17 school year, participated in the research. The sample of students is systematic, and the selection of students was made in the following way: by random selection of three students from each class in which teachers ($n = 240$) applied cooperative learning in the teaching of the mother tongue (Serbian). The students whose serial numbers in the grade book were 3, 6 and 9 were chosen by random selection. Based on the structure of the respondents in the sample, it is possible to state that, according to academic success, the majority of students were with excellent (67.9%) and very good general success (26.9%), and the least of them were with good (5.0%) and sufficient general success (.3%). According to the achieved academic success (grade) in the mother tongue, it can be seen that more than half of the students (53.8%) have excellent success in that subject, followed by students with very good (29.6%) and good success (13.5%), while only 3.2% of students have sufficient success.

The samples of the teaching content ($N = 18$) are teaching units from the mother tongue (Serbian) in the Curriculum for the Fourth Grade of Primary Education (*Regulations on the Teaching Program for the Fourth Grade of Primary Education and Upbringing*, 2014), for which all teachers used cooperative learning. The sample of teaching content was determined before the main testing, with the application of the Checklist for teachers. The testing was done in a group and anonymously, lasting 45 minutes, with voluntary consent.

Instruments. To determine the educational contributions of cooperative learning in the teaching of the Serbian language, two knowledge tests were created: a) Knowledge test; and b) Retest. The content domain included 18 teaching units from the Serbian language provided by the Serbian Language Program for the Fourth Grade of Primary School, within which the teachers applied cooperative learning. The knowledge test (T-1) contains 24 tasks that examine the level of acquisition of students' factual, conceptual and procedural knowledge of the Serbian language. Retest, i.e., (T-2) includes 24 tasks that test the level of sustainability of students' factual, conceptual and procedural knowledge after two months from the first test. It is a parallel form of the Knowledge Test (T1) that contains related and similar tasks. As the quality of students' knowledge is operationalized on three levels (factual, conceptual and procedural), both tests included three subtests with 8 tasks each.

Data analysis and processing. To obtain descriptive statistical indicators on the level of adoption and sustainability of factual, conceptual and procedural knowledge, the mean value, median, standard deviation, range of variable values, asymmetry and flattening of the distribution were used. From statistical inference procedures, the Wilcoxon rank test was used to test the significance of differences in the level of adoption and sustainability of factual, conceptual and procedural knowledge of students who learned through cooperative learning.

Results and discussion

The first research task is aimed at determining the level of adoption and sustainability of students' factual, conceptual and procedural knowledge of the Serbian language. Table 1 shows descriptive statistical indicators of the quality of students' knowledge of their mother tongue (Serbian), i.e., factual, conceptual and procedural knowledge on initial and final testing. The individual qualities of knowledge are arranged hierarchically, and the tasks are also weighted differently, both on the initial and on the final test. Factual-level tasks were assigned a weight of 1, conceptual-level tasks were assigned a weight of 2, and procedural-level tasks were assigned a weight of 3.

Table 2. Descriptive statistical indicators of the quality of knowledge of the initial (t1) and final test (t2)

	Fact. knowledge t1	Concept. knowledge t1	Proced. knowledge t1	Fact. knowledge t2	Concept. knowledge t2	Proced. knowledge t2
Mean value	6.52	11.81	17.07	6.33	10.56	16.60
Modified mean value	6.59	11.95	17.41	6.41	10.69	16.87
Median	7.00	12.00	18.00	7.00	12.00	18.00
Variance	1.218	7.112	28.739	1.750	10.925	28.155
Standard deviation	1.104	2.667	5.361	1.323	3.305	5.306
Minimum	2	2	0	1	0	0
Maximum	8	16	24	8	16	24
Asymmetry	-.631	-.816	-.764	-.812	-.635	-.675
Flattening	.303	.735	.240	.677	.043	-.061
Standard error	.04	.09	.20	.05	.12	.19

Bearing in mind the presented descriptive parameters on the level of adoption and sustainability of factual, conceptual and procedural knowledge in Serbian as a mother tongue (Table 1), we can conclude that the application of cooperative learning

in the current teaching of the Serbian language contributes to the adoption and sustainability of students' knowledge and that various practices of applying cooperative learning to the greatest extent support the acquisition and sustainability of students' factual, then conceptual and, finally, procedural knowledge. Fourth grade students' knowledge of the Serbian language after the application of cooperative learning is highest at the level of factual knowledge, then at the level of conceptual knowledge and to the smallest extent at the level of procedural knowledge. The same trend was established with regard to the sustainability of students' knowledge.

The second research task is aimed at examining whether there is a statistically significant difference in the level of adoption and sustainability of students' factual, conceptual and procedural knowledge of the Serbian language on the initial and final test. The significance results of Kolmogorov-Smirnov and Shapiro-Wilk tests are less than .05, which shows that the assumption about the normality of the distribution of weighted knowledge on the initial and final test was not confirmed. Bearing in mind that the assumption about the normality of the distribution of the weighted results of factual, conceptual and procedural knowledge on the initial and final knowledge test was not confirmed, the determination of a statistically significant difference in the level of adoption and sustainability of students' factual, conceptual and procedural knowledge was investigated using the Wilcoxon test rank, as a non-parametric alternative to the t-test of paired samples (Table 2).

Table 2. Test statistics^a

	Weighted factual knowledge (t2) – Weighted factual knowledge (t1)	Weighted conceptual knowledge (t2) – Weighted conceptual knowledge (t1)	Weighted procedural knowledge (t1) – Weighted procedural knowledge (t2)
Z	-2.858 ^b	-8.939 ^b	-2.126 ^c
Significance (p)	.004	.000	.034
a. Wilcoxon rank test			
b. Based on positive rank values			
c. Based on negative rank values			

The Wilcoxon rank test (Table 3) revealed a statistically significant difference in factual knowledge on the initial (Rank Mean = 281.12, n = 720) and final test (Rank Mean = 246.13, n = 720), $z = -2.858$, $p = .004 < .05$, $r = .08$ (small effect). There is a statistically significant difference in conceptual knowledge on the initial (Mean rank value = 284.69, n = 720) and final test (Mean rank value = 244.40, n = 720), $z = -8.939$, $p = .000 < .05$, $r = .24$ (small to medium effect). There is a statistically significant difference in procedural knowledge on the initial (Mean rank value = 295.86, n = 720) and final test (Mean rank value = 277.88, n = 720), $z = -2.126$, $p = .034 < .05$, $r = .06$ (small effect). By examining the mean values of the ranks, it can

be seen that in all three qualities of knowledge, the level of knowledge is higher on the initial than on the final test.

Table 3. Ranks

		Number of cases	Mean value of the rank	Sum of ranks
Weighted factual knowledge t2	Negative rank	284	281.28	79884.00
– weighted factual knowledge t1	Positive rank	245	246.13	60301.00
Weighted conceptual knowledge t2	Draw	191		
– weighted conceptual knowledge t1	Total	720		
Weighted procedural knowledge t2	Negative rank	372	284.69	105904.00
– weighted procedural knowledge t1	Positive rank	171	244.40	41792.00
Weighted procedural knowledge t2	Draw	177		
– Weighted procedural knowledge t1	Total	720		
Weighted procedural knowledge t2	Negative rank	267	277.88	74195.00
– Weighted procedural knowledge t1	Positive rank	307	295.86	90830.00
Weighted procedural knowledge t2	Draw	146		
– Weighted procedural knowledge t1	Total	720		

Starting from the results of the Wilcoxon rank test (Table 2, 3), it can be concluded that the proposed assumption about the existence of differences in the level of adoption and sustainability of factual, conceptual and procedural knowledge of Serbian language students who learned through cooperative learning, is accepted. The results of the research show that there are statistically significant differences in the adoption and sustainability of all three considered qualities of students' knowledge of the Serbian language, with a tendency for students' level of knowledge to be higher in the initial test than in the final test. The data on the contributions of cooperative learning in the acquisition and sustainability of knowledge of different quality levels of students are not surprising, given that previous research has shown that the application of cooperative learning in language teaching improves written expression (Baliya, 2013; Durukan, 2011; Stevens & Slavin 1995a; Stevens & Slavin 1995b; Stevens, 2003; Teng, 2022; Yavuz & Arsla, 2018), vocabulary (Stevens & Slavin 1995a; Stevens & Slavin 1995b; Stevens, 2003; Yavuz & Arsla, 2018), grammar achievement (Liao, 2006; Yavuz & Arsla, 2018) and reading comprehension (Yavuz & Arsla, 2018). The positive effects on academic achievements in language teaching can be interpreted by the fact that through cooperative learning the integration of different skills and the possibility of improving them are achieved. Within that

integration, there is an assumption that motivational factors (Johnson & Johnson, 2003, 2009; Slavin, 1996, 2014) and social and cognitive processes (Richards & Rodgers, 2014; Slavin, 1996, 2014) work at the same time during cooperative learning with peers in a group. By communicating with peers, students acquire knowledge of grammar and syntax of the target language and improve communication skills (Allwright, 1983).

Yavuz & Arsla give the following explanation:

“While studying in groups, they had the chance to make suggestions, request, agree/ disagree and clarify meaning which exists in real life discourse. While reading, they also comprehend the vocabulary and the listened texts as well. Besides, while writing they made use of grammatical structures and vocabulary (2018: 596).”

Although the general and specific research hypotheses were accepted, the obtained results should not be interpreted unambiguously. There is an assumption that the existing ways of applying cooperative learning in the teaching of the Serbian language have contributed to the acquisition of lower quality knowledge of the Serbian language by students. As suggested by the results of related research on the characteristics of cooperative learning in the teaching of the Serbian language from the teacher’s perspective (Semiz & Antonijević, 2022), solutions are applied in current practice (e.g., in relation to structuring cooperative tasks, forming groups, structuring the roles of teachers and students and basic principles of cooperative learning, etc.) which a priori have less potential to initiate the process of acquiring higher quality knowledge and the use of more complex cognitive processes and activities (creating and evaluating). It was found that during the implementation of cooperative learning, teachers focus on the ways of structuring cooperative tasks, but not so much on the very essence and nature of cooperative tasks. In other words, they mostly create highly structured cooperative tasks (predetermined roles, when and what will be done in the group, a specific time plan of activities) and tasks that do not necessarily require interdependence of all members, group decision-making and group discussions. In addition to the above, the results of other research on the process of implementing cooperative learning (Hennessey & Dionigi, 2013; Krol & Veenman, 2000; Veenman Kenter & Post, 2000) suggest that the existing practices of implementing cooperative learning are not in accordance with characteristics and recommendations for successful implementation of cooperative learning. On the other hand, the possibility that the obtained results were partially shaped by factors arising from the test situation itself is not ruled out. The fact is that the very situation in which the testing was conducted and the procedures during the testing were new to the students. Also, Lukovic indicates that students differ in their ability to communicate different qualities of knowledge in writing, i.e., “not only the knowledge that the examinee possesses, but also the mastery of strategies for solving the test” (2016: 122).

In the interpretation of the obtained results, the following explanation should be kept in mind. Teachers strive to develop and improve practice by applying

cooperative learning strategies and methods, always keeping in mind the specific contextual conditions of the teaching situation, immediate participants, their knowledge, attitudes, values, and the like. A teacher is not just someone who applies cooperative learning, but, above all, a practitioner who, in every phase of the application, deals with the purpose and meanings of that application (Ilić, 2015).

Conclusion

The relationship between the practical application of cooperative learning on the one hand, and theoretical and research findings on the effectiveness of cooperative learning on the other, is often not linear. However, finding a way to organize and carry out teaching based on cooperative learning in order to activate different qualities of students' knowledge, so that students acquire different knowledge, is still a great educational challenge. On the other hand, determining the educational contributions of cooperative learning in improving the quality of knowledge of junior primary school students, and in the context of its real use, is a major research endeavor. Conducted research should provide a better insight and understanding of how teachers apply cooperative learning in class. In addition to the above, it should be determined in what extent cooperative learning applied by teachers in the teaching of Serbian as a mother tongue can be explained and interpreted by the assumptions derived from the integrative model of cooperative learning by R. Slavin (1996) and the revised Bloom's taxonomy (Anderson & Krathwohl, 2001; Krathwohl, 2002).

If we take into account the previously discussed research hypotheses, we can draw a general conclusion that the application of cooperative learning in the current teaching of Serbian as a mother tongue contributes to the adoption and sustainability of students' knowledge and that the practices of applying cooperative learning to the greatest extent support the adoption and sustainability of factual, then conceptual and, finally, students' procedural knowledge of the Serbian language. The general conclusion agrees with the results of related research conducted in language teaching.

Considering the obtained results in the context of the initial theoretical framework, we see an opportunity to elaborate and specify, in future applications of cooperative learning in the teaching of the Serbian language, the mechanisms of promoting positive interdependence in the group, the role of the teacher and the activities of the students, and their mutual interactions, which will be in the zone of the students' further development. The level of adoption and sustainability of students' factual knowledge (zone of current development), should be placed in the function of the development of students' conceptual and procedural knowledge (zone of further development). Although the great theoretical potential of the revised Bloom's taxonomy was recognized in the construction of knowledge tests and the operationalization of the quality of students' knowledge of the Serbian language, it was only the use of the mentioned taxonomy of knowledge that indicated certain problems. We highlight the following: a) the relationship between taxonomic

categories is not so simple (evaluators evaluate tasks differently from the point of view of what quality of knowledge they can measure or have the potential to activate in students); b) it is not enough to only take into account the levels of knowledge that are organized hierarchically and the cognitive processes that we want to encourage in students, because the quality of students' knowledge is largely determined by the ways of acquiring that knowledge, and the approach of assessing knowledge through a paper-pencil test cannot always accompany that prospect; c) limited possibility in examining more complex cognitive processes and student activities in the form of a test examination. Bearing in mind the previously stated views, it is understandable that taxonomies and the revised Bloom's Taxonomy as well, cannot be considered definitive in assessing student knowledge (Lukovic, 2016).

In the discussion of the research results, the limitations of the research should be kept in mind. The research was conducted in 2016, and in 2019 a new teaching and learning program for the fourth grade of primary school was adopted, whose starting points were the outcomes and learning processes, unlike the old program framework, which was based on teaching content. In addition to the mentioned time distance and the new program framework for the work of teachers, limitations can also be seen in the applied methodology and the possibilities of developed knowledge tests in examining the level of adoption and sustainability of students' knowledge of the Serbian language as the result of only the application of cooperative learning by the teachers.

In future research, qualitative studies of the process of applying cooperative learning in teaching through systematic or participatory observation, with the application of authentic techniques of monitoring and evaluating the process and outcomes of teaching work, would be of particular importance. Due to the fact that the application of knowledge tests does not exhaust all the possibilities of testing different qualities of students' knowledge, in future research other knowledge assessment procedures should be used, especially authentic assessment procedures (e.g., narratives, portfolios, authentic tests, etc.). In addition to the above, it is necessary to analyze, in more detail, the importance and influence of the wider teaching context (measures of educational policy, didactic-methodical organization of teaching work, teacher training, initial teacher education, pedagogical beliefs of teachers, learning styles, curricula, textbooks, student motivation, student attitude towards the subject, reading competence, causal attributions of school success, etc.), as well as the extracurricular context (cultural, political, economic, social influences) from the point of view of the possibility of applying cooperative learning.

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ДОПРИНОС СТРАТЕГИЈА КООПЕРАТИВНОГ УЧЕЊА УНАПРЕЂИВАЊУ КВАЛИТЕТА ЗНАЊА УЧЕНИКА ИЗ МАТЕРЊЕГ ЈЕЗИКА

РЕЗИМЕ

Успешна примена стратегија кооперативног учења у настави матерњег језика са становишта унапређивања квалитета знања ученика захтева велику дидактичко-методичку стручност наставника у формирању група, структурирању кооперативних задатака, основних принципа кооперативног учења итд. Теоријско полазиште овог рада представљају поставке теорије социјалне међузависности, Славиновог интегративног модела и ревидиране Блумове таксономије знања. У овом раду биће презентовани резултати екс-пост-факто истраживања спроведеног ради испитивања да ли се и у којој мери применом стратегија кооперативног учења може унапредити квалитет чињеничког, појмовног и процедуралног знања ученика из матерњег језика. На систематском узорку ученика четвртог разреда основне школе из 14 округа у Србији ($n = 720$) примењена су два теста знања за иницијално и финално мерење. Резултати истраживања су показали да разноврсне праксе примене стратегија кооперативног учења у актуелној настави матерњег језика доприносе усвојености и одрживости ученичких знања, у највећој мери чињеничког, а потом појмовног и процедуралног.

Кључне речи: *квалитет знања, стратегије кооперативног учења, теорија социјалне међузависности, матерњи језик, ученици млађег основношколског узраста.*