



Danijela N. Vasiljević¹,
Žana P. Bojović, Marina Ž. Semiz
University of Kragujevac, Faculty of Education, Užice, Serbia

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The Potential of Online Platforms Compared to In-Person Teaching – Different Experiences of Teachers²

Summary: *The first part of this paper offers a theoretical interpretation of the previous research of the methodological potential and efficiency of online teaching (especially during the Covid regime), whereas the second part is methodologically oriented towards the examination of the attitudes of teachers on the potential of the implemented distance learning platforms vs. in-person teaching. The sample is represented by 604 teachers of elementary and secondary schools from all administrative regions in the Republic of Serbia. The research was performed using descriptive method and the survey method. The results of the research showed that: a) teachers mostly do not have a positive perception of the advantages of distance learning platforms compared to traditional, in-person teaching with regards to the application of teaching technology; b) traditional teaching is considered more efficient for the quality of work of students and teachers; c) teachers do not show the expected willingness for the occasional use of the hybrid model in the future; the independent variables did not influence the final results of the research. A statistically significant difference was observed only in the attitudes of teachers of different educational cycles and the users of different learning platforms.*

Keywords: *distance education, online teaching, educational platforms, Covid 19, teaching strategies*

¹ d.vasiljevic123@gmail.com

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Introduction

If there is anything to be thankful for during the Covid 19 pandemic, it is the intensive popularization of distance learning, although this type of learning has existed since the 19th century when conventional education was available only for the wealthy class. Correspondence learning or education through correspondence gained in its extensivity, intensity, and significance owing to the improvement of the postal system, printing technology, and later radio and television system. The development of satellite communication and the rise of ICT offered new alternatives for organizing and performing distance teaching. The Internet became an irreplaceable ally in all areas of human activities, including education. In this regard, online learning gained in its significance especially in the developed countries around the world (Mandić & Ristić, 2017, Vasiljević, 2016). However, although there were previous experiences, the first systematic and organizational decisions on their implementation in teaching at all levels of education in RS were made due to a virus!

In reaction to the pandemic caused by COVID 19, the government of the Republic of Serbia on 15th March 2020, in accordance with the Decision on declaring a state of emergency ("The Official Gazette of RS", No. 29/2020, on 15/3/2020) and the Decree on measures during the state of emergency ("The Official Gazette of RS", No. 31/2020 on 15/3/2020), enacted the Decision on the closure of institutions of higher, secondary, primary, and pre-school education and care facilities ("The Official Gazette of RS", No. 30/2020 on 15/3/2020). In-person education was temporarily suspended in all primary, secondary, and higher education institutions. The Ministry of Education, Science and Technological Development made an operational plan for the continuance of school work in difficult teaching conditions and organized television distance teaching in order to ensure proper and equal operationalization of educational institutions, in accordance

with the decisions of the government of the Republic of Serbia. Therefore, in cooperation with Radio Television Serbia, the filming and broadcasting of educational content for distance learning was organized on TV channels RTS 2, RTS 3 and platform RTS Planeta. The broadcasting of this educational content began on 17 March 2020, only two days after the declaration of the state of emergency in Serbia. Shortly after that it was followed by the request for an internal systemic institutionalized online teaching at all education levels. The character and scope of its implementation was conditioned by the age of students, the health situation in the country, region, municipality where the school was located. In the circumstances of this ad hoc organization, the greatest burden and responsibility was upon school principals and teachers who more or less efficiently found solutions for the new situations. In those chaotic circumstances, often without previous training or preparation, there was a fast transition to internal online teaching which was dominant for all the students for a while, and later with the easing of the measures, it was often performed in combination with in-person teaching.

In the previous two years, lower elementary school students mostly had traditionally organized instruction, although there were periods of online education, though considerably fewer than in the upper grades of elementary school. Depending on the ever-changing health situation in a class, students from grade 5 to 8 of elementary school attended on-site and online classes, most frequently split in parallel groups (two groups of one class), where one group attended in-person lessons, and the other one online lessons, with groups alternating during the school week. Compared to other levels of education, online teaching was performed most frequently for the secondary school students. In this regard, teachers' experiences are different. These circumstances induced us to look at the problem both theoretically and empirically.

Theoretical aspect

In the situation of emergency caused by the virus Covid 19, a great number of countries were forced to learn from their own example in search of the quick solutions. Global and personal willingness and the previous experience largely determined the character and efficiency of online learning at national level (Bozkurt et al., 2020). The extent and the way of responding to challenges of the recent situation, alongside strategic, systemic, and technological support, depended upon their willingness to professionally cooperate and develop, their motivation, inventiveness, acquired ICT competences, as well as their pedagogical ICT competencies.

Different experiences of the countries within this domain were the subject of numerous scientific studies in the previous two years that focused their investigative attention on the issues such as organization, quality, effects of online teaching at all levels of education, willingness, motivation, and competencies of teachers and students to work in a new digital environment. Dichotomous experiences point to affirmation of this type of learning, but also reveal numerous restrictions compared to in-person learning. The studies dealing with subjects oriented towards teaching strategies in the distance learning system and teachers' perceptions of the platform support are especially interesting to us.

Along these lines, the findings of a Romanian study examining the efficiency of online platforms are especially interesting (Moodle, Prometheus, Zoom), as well as technology supported learning via mobile phones and web servers in the training of future teachers. The results of the study showed that the efficiency of students' learning in quarantine was influenced by proper educational and informational support from teachers, as well as other students, and that the mentioned platforms can totally respond to the requests of the pedagogical courses at university owing to their flexibility, multidimensionality, and interactivity (Terenko & Ogienko, 2020). Similar results were found in the research conducted by the

Alliance of Elementary Teachers of Serbia and Educational and Creative Centre of Serbia, showing that the employees of elementary schools used multiple tools and platforms to perform online teaching, mostly Viber Community and Google Classroom, and least Microsoft Teams, Moodle, Zoom, Skype platforms (Nikolić and Milojević, 2020; Alliance of Elementary Teachers of Serbia, 2020).

For teachers using Zoom, Google classroom, and Microsoft Teams, the most common reasons for discontent are: the lack of ICT skills and capability to organize e-learning, expensive internet packages, students' lack of motivation to cooperate and irregular attendance, teachers' insufficient trust in technology, limited availability of educational programmes, resources, bad network infrastructure and support (Shaista et al., 2020). In terms of restrictions in working on platforms there is also teachers' discontent with students' interaction (Nambiar, 2020; Orhan & Beyhan, 2020), the quality of internet connection, and physical condition (Marzuki et al., 2021), the lack of or poor infrastructure, internet speed, economic issues, financial crisis (expensive internet bills, family expenses) (Ramij & Sulтана, 2020).

One of the key reasons why teachers prefer formal education compared to distance education is the lack of quality, full, in-person interaction and communication in virtual surroundings (Nambiar, 2020). The aforementioned may be completed by the results of a Turkish study based on the interviews of 27 Turkish students who are educated at distance. The students said that, in addition to the above, there are differences in teaching methods – some teachers only read from slides, poor preparation of materials, lessons are not interactive (Gökbulut, 2020).

However, some studies point to the benefits of online teaching. New pedagogical experiences in online surroundings contributed to expressing creativity, dedication and willingness of teachers to help and cooperate in technically limited conditions

(Shaista et al. 2020). The analysis of the teachers' perception of learning in the new digital surroundings caused by the pandemic of Covid 19 virus (Giovannella et al. 2020) showed that teachers in Italy had positive perceptions of using technology that can be interpreted in the context of the research results by Allen et al. (2012) even before the pandemic. To be specific, teachers with experience in online teaching proved to have a more positive attitude towards online teaching than others, stating that it may be equally efficient as in-person teaching. Similarly, teachers' motivation may be related to their attitude towards online teaching (Li et al. 2017).

Developing digital skills positively changes the attitude towards contemporary teaching technology. Therefore, the request for continual development of teachers' digital skills is of special importance, along with providing appropriate hardware and software support.

However, choosing a platform for distance learning does not make teaching a priori successful. Given that it is necessary to view the key factors that should be considered in order to get faculty management, professors and students to accept and use e-learning platforms in the best way, the group of authors focused on examining the limitations of e-learning platforms in Moroccan higher education during the isolation caused by the Covid-19 pandemic. The research was conducted among 3037 students and 231 teachers, using a Google form questionnaire, and it was aimed at examining the competence for distance learning before the pandemics, the use of different educational tools and techniques, practical challenges, and potential effects on learning outcomes. Some respondents expressed discontent regarding bandwidth and Internet connection, ergonomics, the easiness and practicality of the platforms. As special expectations of e-learning platforms, the respondents distinguished: 1. Establishing an appropriate infrastructure; 2. Providing the distance learning platform that offers simulators adapted to each sector of training; 3. Dealing

with the problem of momentary interaction with a great number of students, thus enabling the usage of big files with software license; 4. Easy access (especially for students), more specialized preparation for training on the right usage of platforms, good generalization upon all activities related to educational and scientific research, complementarity with all university courses. 5. Making video conferencing a routine – providing all lectures with technical support of an expert (Elfirdoussi et al. 2020).

Learning and teaching strategies in online surroundings, their selection, application, and a possibility of creative combination, mainly determine the quality of teaching process and consequently the learning outcomes. In that respect, of special importance are the competences of teachers, motivation, the quality of teaching materials, the choice of a suitable teaching technology, as well as the evaluation of the achieved. Starting from the given elements, Aslan and a group of associates (Aslan et al. 2020) worked out the formulation of strategies of a successful teaching procedure: 1) spatial learning practice, 2) retrospective approach, 3) practical elaborative learning, 4) collaborative learning, 5) interleaving approach, 6) concrete commitment, 7) multiple coding skills, 8) helpful resources, 9) digital competence, and 10) celebrating every success.

Analyzing the responses of the key participants of the teaching and educational process (from school management to students) collected in interviews, a group of Indonesian authors chose the following as important pedagogical strategies for improving the learning outcomes in online surroundings through encouraging interest and motivating students: understanding the importance of learning, clarity, concise and interesting learning materials, the use of simple and interesting media, continuous and timely evaluation (Sutarto et al. 2020).

From teachers' point of view, an interesting indicator of the quality of online teaching is the implementation of digital teaching materials made by web-tools during the state of emergency and their

sources. The results of a regional research in Serbia, Bosnia and Herzegovina, Croatia, Montenegro, and Northern Macedonia showed that during the state of emergency slightly less than a half of teachers made digital teaching materials using web-tools, unlike others who, as they say, did not have enough time due to working too much on organizing online teaching. Two-thirds of teachers create their own materials; a little less than one-third of teachers downloads materials from the Internet or teachers' groups/communities; while an insignificant number of teachers uses e-textbooks (Nikolić & Milojević 2020).

Generally speaking, the research results show that distance learning is a relevant substitute for formal education in the conditions of the state of emergency, but it cannot be a universal substitute for in-person teaching and learning. Therefore, it could be used only to support regular classroom teaching (Nikolić & Milojević, 2020; Sutiah et al., 2020; Terenko & Ogienko 2020). Bearing this in mind, it is necessary to continuously compare teachers' digital competences. In order to modernize the educational system and keep up-to-date with contemporary social, technological, and economic affairs, including the widespread use of information-communication technology, it is necessary to change the practice within educational institutions, which also means changing the roles of teachers in terms of developing new competencies (Al-Ababneh & Alrhaimi, 2020). Mastering new technologies is only one of many prerequisites for improving the quality of teaching and learning, but it is not the crucial one for a successful implementation of the teaching process.

Research problem

Is distance teaching a good solution compared to traditional teaching? How do teachers use online platforms in the distance learning system? Do they perceive its benefits and restrictions compared to traditional teaching? How do teachers of

different age and professional experience cope with the new digital surroundings? Do the implemented platforms offer different possibilities, according to teachers? Is there a difference in the attitudes of the respondents, depending on which education cycle they belong to or which platform they are using? What do they experience and how do they do online teaching in terms of quality and efficiency, and, consequently, will they be ready to use it after Covid measures are dropped? – these were the key questions for defining the aim of the research: *Examine how teachers perceive the potential of the implemented distance learning platforms in comparison with the traditionally organized teaching.* In this way, it will be indirectly and subcontextually determined what is the dominant method of implementation of the chosen platforms, i.e. nature of the implemented online teaching. The research tasks are oriented towards an assessment of teachers' attitudes on the potential of the implemented platforms in the following domains: 1) the use of teaching technology (sociological forms of teaching, teaching methods, teaching systems, the media, and ways of communication); 2) the quality and effects of online teaching; 3) online teaching in the future, 4) the influence of independent variables on the attitudes of teachers on the teaching potential of online platforms in relation to in-person teaching.

Given the fact that most teachers had gone into the process of fast implementation of distance learning system unprepared, it is expected that as a whole, they would largely give precedence to the traditional organizational of teaching, its quality and effects, and be somewhat reserved in their assessment of the use of online teaching in the future.

Sample

The research sample consists of 604 teachers in the Republic of Serbia who teach in the first three cycles of education (elementary (2 cycles of four years) and secondary school (one cycle)). The

quantitative case study approach was applied, with practical samples. In order to achieve better representation, the respondents from all districts of the Republic of Serbia were included, i.e. from rural, urban and suburban schools, teachers of different ages and professional experience, class teachers, subject teachers who teach students in senior grades of pri-

mary school, as well as secondary school teachers, users of different online platforms, and users of different professional competence (courses and trainings) and organizational online experience (traditional teaching, combined model, online teaching).

Questionnaire

Theoretical and empirical assumptions of various researches, as well as the current situation in Serbia were the starting point for creating online questionnaire, which, in addition to independent variables, also considered topics related to teachers' experiences on the possibilities of applying online platforms in relation to traditional organization of teaching, especially in the following areas: 1) ways to use teaching technology (sociologic forms of teaching, teaching methods, teaching systems, media and types of communication); 2) quality and effects of online teaching; 3) teacher's readiness to apply online teaching in the future. The questionnaire is based on the Likert-type scale.

Data analysis

Descriptive analysis and quantitative analyses of responses were applied in order to identify the possibilities of platforms and establish a potential connection between different research variables. All the data was analysed by IBM SPSS (version 19.0) calculating Chi-square, coefficient of contingency, and displaying results in percentage. The statistic significance was tested at the importance level of $p=0.01$. and $p=0.05$.

The efficiency of teaching technology in online surroundings compared to traditional teaching

Comparative attitudes of teachers on the possibilities of applying teaching technology in an online environment compared to in-person, traditional teaching were viewed from the aspect of its indi-

Table 1. Sample structure (N=604)

Independent variables	Modality	(f)	(%)
School/ education cycle	Lower grades of elementary school	204	33.8
	Higher grades of elementary school	250	41.4
	Secondary school	150	24.8
School /Place	Rural	154	25.5
	Suburban	76	12.6
	Urban	374	61.9
Age	up to 30	21	3.5
	31 to 40	134	22.2
	41 to 50	256	42.4
	over 50	193	32
Work experience	up to 5 years	48	7.9
	6 to 10	69	11.4
	11 to 20	213	35.3
	21 to 30	181	30
	over 30 years	93	15.4
Online platform	Google classroom	411	68
	Teams Microsoft	70	11.6
	Moodle	7	1.2
	Social networks	82	13.6
	Other	34	5.7
Online courses/ attending	Yes	466	77.1
	No	138	22.9
Dominant work Covid experience	Traditional teaching	48	8
	Traditional teaching dominant, occasionally online	149	24.7
	Online teaching occasionally combined with traditional teaching	347	57.5
	Online teaching	71	11.8

vidual categories – sociological forms of teaching, teaching methods, teaching systems, use of media and teaching aids, and the use of different types of communication.

Speaking about the sociological forms of teaching, teachers prefer traditional teaching. Only the implementation of individual work form, according to the opinions of a half of the teachers (50.66%), is more efficient in online surroundings. About a third of the teachers or 36.59% does not agree with this, while there are 12.74% who are neutral upon this issue.

It is interesting that teachers value the special convenience of in-person teaching for pair or group work. It seems that they did not have many dilemmas upon this matter or any knowledge about the possibilities of organizing these sociological work forms in online surroundings.

According to teachers, teaching methods have better results in in-person contact with students. Only the text method for just over a half of the teachers (52.64%) is more efficient in online surroundings. One-third of the teachers does not concur with this attitude (32.95%). There are 14.41% neutral. It is interesting that the efficiency of the monologue method was rated in divided attitudes (40.89% in favor of online teaching and 42.05% in favor of traditional instruction, while there are 14.56% of neutral opinion). It is possible that some teachers see the efficiency of the monologue method because of an easier involvement of different experts, or playing videos in web surroundings, using

television platform, while others especially appreciate direct relationship, the efficiency of a direct non-verbal communication while presenting. It is interesting that teachers appreciate the advantage of experimental-laboratory method of practical work, drawing method, dialogue method, and writing method in face-to-face teaching.

It is especially interesting that teachers do not predominantly prefer any single teaching system applied in online surroundings to in-person teaching. However, individualized teaching divided the attitudes of teachers into two equal parts – 41.72% of respondents were in favor of online teaching and 42.06% in favor of traditionally organized teaching. It is very valuable that teachers also observe the potential of online platforms for carrying out projects, programmed, differentiated, problem solving and team work, etc. However, it was expected that teachers would recognize better a higher potential offered by online platforms especially for programme, differentiated, and individualized teaching. It is interesting that only team and exemplary teaching, and by just over a half of the respondents (54.64% I 51.49%), is perceived as more efficient for an in-person contact with the students. A great percentage of the neutral respondents leads us to assume that some teaching systems are unknown or less known to teachers, which consequently influenced their partially unexpected attitudes in this matter.

We were especially interested in the way teachers perceive the efficiency of the media and different types of communication in the teaching pro-

Table 2. Efficiency of sociological forms of teaching in online surroundings compared to traditional teaching – attitudes of teachers (N=604)

Sociological forms of teaching	Attitudes towards online teaching		Attitudes towards traditional teaching		Neutral attitudes	
	(f)	(%)	(f)	(%)	(f)	(%)
Frontal teaching	172	28.47	342	56.62	90	14.90
Group work	117	19.37	393	65.06	94	15.56
Pair work	86	14.23	426	70.52	92	15.23
Individual work	306	50.66	221	36.59	77	12.74

Table 3. The efficiency of teaching methods in online surroundings compared to traditional teaching – attitudes of teachers (N=604)

Teaching methods	Attitudes in favour of online teaching		Attitudes in favour of traditional teaching		Neutral attitudes	
	(f)	(%)	(f)	(%)	(f)	(%)
Monologue	247	40.89	254	42.05	103	17.05
Dialogue	137	22.68	356	58.94	111	18.38
Text method	318	52.65	199	32.95	87	14.40
Experimental/ laboratory method practical work	58	9.60	385	63.74	161	26.65
Drawing method	97	16.06	360	59.60	147	24.34
Writing method	166	27.48	328	54.30	110	18.21
Demonstrative method	186	30.79	300	49.67	118	19.54

cess. The obtained results show that a little under a half of teachers or 45.5% (275) consider that the use of the media is more efficient in online surroundings. One-third of teachers does not concur with this attitude or 32% (197), while there are 26.82% (132) neutral responses on this matter. It is similar with perceiving the advantages of online platforms with regards to the representation of different types of communication (281 teachers or 46.52% have a positive attitude, 197 or 34.44% neutral, while 115 teachers or 19.04% have a negative attitude). The as-

sumption is that the examinees associated the use of the media with the possibilities of different types of communication, as well as that they recognized the significance of synchronous and asynchronous communication in digital surroundings. Media and communication channels must not be an end in themselves, but should instead aim to achieve methodological goals, tasks and outcomes, depending on the teachers' teaching competence and their readiness to improve their teaching strategies (Sutarto et al. 2020). It seems that teachers feel most comfort-

Table 4. Efficiency of teaching systems in online surroundings compared to traditional teaching– attitudes of teachers (N=604)

Teaching systems	Attitudes in favor of online teaching		Attitudes in favor of traditional teaching		Neutral attitudes	
	(f)	(%)	(f)	(%)	(f)	(%)
Problem teaching	136	22.52	303	50.16	165	27.32
Team work teaching	121	20.03	330	54.64	153	25.33
Individualized teaching	252	41.72	254	42.06	98	16.22
Exemplary teaching	87	14.40	311	51.49	206	34.11
Differentiated teaching	156	25.83	269	44.54	179	29.63
Programmed teaching	164	27.15	256	42.39	184	30.46
Heuristic teaching	70	11.59	301	49.83	233	38.57
Project teaching	215	35.59	247	40.89	142	23.51

able in this regard in the digital environment compared to other situations.

The findings obtained in this segment of the research indicate a dichotomy of experiences among teachers, and support research that aims to identify differences in the teaching strategies and methods of different teachers (Gökbulut, B., 2020). They indicate the necessity of methodological training, especially in the field of practical application of teaching systems, as well as individual teaching methods and approaches. In that regard, it is necessary to provide a specialized preparation and training in the proper use of the platform (Elfirdoussi et al, 2020), as well as follow the strategies of effective teaching (Aslan et al, 2020).

The quality and effects of online teaching

Given the fact that the majority of teachers do not perceive online teaching as more effective in relation to traditional teaching, the results obtained in the second research task are understandable. The part of the research related to examining the quality and effects of online teaching of its key participants – teachers and students is in consistence with the previously obtained findings. Specifically, assessing the assumption that *the quality and effects of online teaching are better than in the traditional teaching model*, teachers took a very clear position. A negligible percentage of the respondents agreed with the assumption (1.49% strongly agreed and 5,6% somewhat agreed), almost a quarter, or 23.18% were undecided, whereas more than two thirds of the respondents took a negative position regarding the matter (40.13% strongly disagreed, 29.47% somewhat disagreed), assessing the quality and effects of online teaching as inferior with regard to traditional, in-person teaching. They were even more rigid in their assessment of the quality and effects of student learning on online platforms. It turned out that 76.2% of the teachers (45.4% strongly disagreed and 30.8% somewhat disagreed) had a negative attitude

regarding this matter, while less than one third of the respondents were undecided (30,8%), and a negligible 4,8% appreciate student efforts in the online environment, assessing it as better and more effective than in traditional teaching.

The obtained results are in agreement with the results of all studies that give priority to formal education (Nambair 2020; Orhan and Beyhan 2020), and in disagreement with optimistic studies that show that teaching can be equally effective in the traditional and online models (Allen et al. 2012).

Implementation of online teaching in the future

The third research task related to sustainability of online teaching was especially important to us. Namely, we were interested in: a) if the teachers would readily organize online teaching (alongside traditional) and b) if they would voluntarily implement this teaching model upon the cease of Covid measures.

It is interesting that about a half of the teachers show readiness, actually they would gladly organize online teaching even upon the cease of the measures, while a little over one third or 36.75% do not show interest regarding this matter, while 11.3% were indecisive. However, the readiness to voluntarily organize online teaching was demonstrated by only 20.53% of teachers, 27,81% were indecisive, whereas a half of the teachers (51,66%) explicitly showed that upon the suspension of the anti-COVID measures, they would solely implement traditional teaching. Although the items under a) and b) seem contradictory at first glance, it is possible that their attitude toward the introduction of online teaching is shaped by external factors (demands of the school management, parents, children, etc.). Distance learning has a certain future and great perspectives, which is a fact the respondents are fully aware of, but they also share an attitude that online teaching can be a substitute for traditional instruction

only in emergency situations, while in normal circumstances, it can only be a complement to traditional, classroom instruction (Nikolić and Milojević 2020; Sutiah et al 2020; Terenko and Ogienko 2020).

The influence of independent variables upon the final research results

The independent variables did not affect the final research results in any significant way. It is interesting that there are no differences in the assessment of the possibilities of online platforms between teachers from different age groups – both young teachers, at the beginning of their career and those whose professional career is nearing its end share similar assessments. It turned out that the environment in which the school is located (rural, urban or suburban schools) had no bearing on the teachers' experiences, as well as that their experience with COVID, i.e. different modes of teaching during the lockdown, nor their competence/knowledge related to the organization of online teaching were relevant for statistical analysis.

However, statistically significant differences were identified in several cases, especially with regard to variables: a) educational cycle in which the teacher teaches (junior and senior grades of primary school, secondary school); b) selection of platforms for the implementation of online teaching.

It turned out that teachers, more than others, positively assess the possibilities of online platforms for the implementation of problem-based, differentiated, and programmed instruction. Statistical significance is presented through the values of chi-square for problem-based instruction ($X^2=13,756$; $df=6$; $p=0,032$, $p<0,05$), differentiated instruction ($X^2=33,414^*$; $df=6$; $p=0,000$, $p<0,01$), and programmed instruction ($X^2=22,622$; $df=6$; $p=0,001$, ($p=0,01$). We can look for potential reasons for such results in the teachers' familiarity with the aforementioned teaching systems, thanks to the curricula of teacher education/pedagogy faculties. Similar re-

sults were obtained for the experimental/laboratory method ($X^2=14,702$; $df=6$; $p=0,23$ ($p<0,05$).

The obtained parameters indicate that the choice of the platform greatly influences teachers' attitudes regarding the quality and effectiveness of students' work in the online environment. Teachers who use social media are particularly critical in this regard ($X^2=54,154^*$; $df=24$; $p=0,000$), which is consistent with the assumption that the effectiveness and quality of student performance is greatly influenced by the appropriate educational and informational support, aimed at flexibility, multidisciplinary and interactivity (Terenko and Ogienko 2020; Nikolić and Milojević 2020).

Conclusion

Mastering new technologies is just one among many requirements that need to be met in order to improve the quality of teaching and learning efficiency, but not the only one for the successful implementation of the teaching process. Teaching and learning strategies in the online environment, their selection, operationalization, methodological interiorization, and creative combining are major requirements for ensuring the quality of the teaching process, as well as the achievement of goals, tasks, and learning outcomes. Wanting to examine how teachers perceive the methodological potential of educational platforms with regard to traditional instruction, we conducted research on a sample of 604 teachers from Serbia.

The results of this transversal research conducted with the use of a questionnaire showed that teachers in all three cycles of education in Serbia:

1. Do not nurture a predominantly positive attitude toward educational distance learning platforms compared to traditional, in-person teaching.

According to our teachers-respondents, sociological forms are more effective in the physical classroom. Only individual teaching, according to more than a half of the respondents, has a bet-

ter status in the online environment. Similar results were obtained for almost all other teaching methods, with the exception of the text method because it proved to be more effective in the online environment for more than a half of the respondents (52,64%). The monologic method divided our respondents (40,89% were in favor of online teaching, while 42,05% were in favor of traditional teaching). The teachers recognize a unique advantage of traditional teaching in the implementation of the experimental-laboratory method/practical method, drawing method, dialogic method, and writing method. Teachers do not give preference to any single teaching system in the online environment in relation to traditional teaching. However, they are evenly divided when it comes to the possibilities of individualized instruction (41,71% are in favor of online teaching, 42,06% are in favor of traditional teaching). The general impression, especially with regard to programmed and differentiated instruction, is that teachers are insufficiently familiar with these systems in the methodological sense. Only team-based and example-based teaching are seen as more effective in the traditional classroom environment. Different media and means of communication are recognized as an important educational resource by less than a half of the respondents, whereas one third of the teachers give precedence to traditional teaching in this regard as well.

The positive perception of traditional teaching in terms of quality and effects of both teacher and student work is dominant. Two thirds, or 69,60% of the respondents assess the quality and effects of teachers' work in the online environment as inferior to those in traditional teaching (a negligible percentage favors online teaching – 7.09%); Similar results were obtained in the assessment of the quality and effects of students' work in the online environment (76,2% of the respondents favor traditional teaching, while only 4,8 opted for online teaching).

The application of online teaching in the future depends on the educational context, i.e. exter-

nal factors. A half of the respondents professed they would be happy to organize online teaching upon the cessation of the anti-COVID measures, in combination with traditional instruction. One third of the respondents showed no interest in this matter whatsoever. A particularly significant data – readiness to organize online teaching in combination with traditional instruction in the future of one's own accord was demonstrated only by one fifth of the respondents (20,53%), while a half was strongly opposed to the idea (51,66%).

Teachers from different age groups, professional experience, those from different work environments, COVID-related experience, competence and knowledge needed for the implementation of online environment assessed the possibilities of online platforms from the methodological aspect with regard to traditional teaching in the exact same way. They also agree when it comes to the assessment of the effectiveness and quality of teachers' and students' work in the online environment, as well as their readiness to implement online teaching even after the cessation of anti-COVID measures. The end results were only influenced by the educational cycle in which the teachers work, as well as the selection of educational platforms. Class teachers have a somewhat more positive attitude toward the possibilities of online platforms for the implementation of programmed, differentiated and problem-based instruction, as well as experimental-laboratory method/practical method. Social media users were more critical in their assessment of the quality and effectiveness of students' work in the online environment than the others.

Only when the complete findings of the research are examined in the context of the results of foreign studies, it is clear that distance learning cannot be an ideal and universal substitute for formal education (Nikolić and Milojević 2020; Sutiah et al. 2020; Terenko and Ogienko 2020). However, the need for improving teachers' digital competencies is obvious and indisputable (Al-Ababneh and Alrhai-

mi 2020), especially in the domain of instructional design, i.e. methodological interiorization of teaching technologies in the digital environment. It is the only way to achieve positive aspects of distance learning and achieve long-term results, to recognize and correctly incorporate them in the educational system. Therefore, future research should focus on questioning teachers about: predictors of online

teaching, one's ability to implement online instruction, one's readiness to improve one's methodological ICT competencies, etc. Identifying advantages and limitations of online teaching in the context of the defined independent research variables will be particularly important in that regard.

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Данијела Н. Василијевић,

Жана П. Бојовић, Марина Ж. Семиз

Универзитет у Крагујевцу, Педагошки факултет, Ужице, Србија

МОГУЋНОСТИ ОНЛАЈН-ПЛАТФОРМИ У ОДНОСУ НА НЕПОСРЕДНУ НАСТАВУ – РАЗЛИЧИТА ИСКУСТВА НАСТАВНИКА

Први део рада посвећен је теоријској интерпретацији истраживања везаној за испитивање ефикасности онлајн-наставе изазване пандемијом вируса корона. Искуства различитих земаља у прошлом периоду су дихотомна; говоре у прилој афирмацији овој вида учења, али откривају и бројна ограничења, посебно у вези са ефикасношћу класичне наставе. Други, методолошки део рада оријентисан је на испитивање ставова наставника о методичким особеностима имплементираних платформа за учење на даљину у односу на непосредну наставу, чиме се на индиректан начин испитује карактер њихове примене у прошлом двојном периоду.

Да ли је настава на даљину добро решење у односу на класичну наставу? Како наставници користе онлајн-платформе у систему учења на даљину? Перципирају ли њихове предности и ограничења у односу на класичну наставу? Како се налазе у новом дигиталном окружењу наставници различитог професионалног искуства и старосне доби? Да ли имплементираних платформа носе са собом различите могућности, по мишљењу наставника? Постоји ли разлика у ставовима испитаника у зависности од тога ком образовном циклусу припадају или коју платформу користе? Како доживљавају и реализују онлајн-наставу са аспекта квалитета и ефикасности и, сходно томе, да ли ће бити spremni за њихову имплементацију у будућности и по прелазу мера за савладавање и сузбијање заразне болести вируса корона? – била су кључна питања за дефинисање циља истраживања: Испитати како наставници перципирају могућности имплементираних платформа учења на даљину у односу на класично организовану наставу. Индиректно, у контексту, овако ће се установити доминантан начин имплементације изабраних платформа, односно карактер реализоване онлајн-наставе. Истраживачки задаци оријентисани су на испитивање ставова наставника о могућностима имплементираних платформа у домену: 1) примене наставне технологије (социолошких облика наставног рада, наставних метода, наставних система, медија и видова комуникација); 2) квалитета и ефекта онлајн-наставе; 3) примене онлајн-наставе у будућности; 4) улога независних варијабли на ставове наставника о могућностима примене онлајн-платформи у односу на непосредну наставу.

Узорак истраживања представљају 604 наставника основних и средњих школа свих округа Републике Србије. Истраживање је обављено применом дескриптивне методе и технике анкетирања. Резултати истраживања су показали да наставници: а) немају доминантно позитивну перцепцију предности образовних платформа за учење на даљину у односу на класичну, непосредну наставу у погледу примене наставне технологије; б) класичну наставу оцењују као ефикаснију у погледу квалитета рада ученика и наставника; в) не показују очекивану spremnost за времену примену хибридног модела у будућности. Неза-

висне варијабле нису утицале на крајње резултате истраживања. Уочена је статистички значајна разлика једино у ставовима наставника различитог образовног циклуса коме припадају и корисника различитих образовних платформи.

Резултати истраживања трансфералног карактера обављеног применом уџбеника у 2022. години показали су да наставници сва три образовна циклуса у Републици Србији: 1) немају доминантно позитивну перцепцију вредности образовних платформи за учење на даљину у односу на класичну, непосредну наставу у погледу примене наставне технологије; 2) доминантна је позитивна перцепција класичне наставе у погледу квалитета и ефеката рада наставника и ученика у непосредној настави; 3) примена онлајн-наставе у будућности је условљена образовним контекстом, њачније социјалним факторима; 4) наставници различитог старосне доби, радног искуства, средине у којој раде, доминантно радно искуства у вези са вирусом корона, обучености за реализацију онлајн-наставе истовешно оцењују могућности онлајн-платформи са методичког становишта у односу на класичну наставу.

Када се сагледају целокупни налази истраживања у контексту резултата истраживања иностраних студија, јасно је да учење на даљину не може бити идеална и универзална замена за формално образовање (Nikolić, Milojević, 2020; Sutiah et al., 2020; Terenko & Ogienko, 2020). Међутим, евидентна је потреба за унапређивањем дијигиталних компетенција наставника (Al-Ababneh & Alrhaimi, 2020), посебно у домену инструкционог дизајна, односно методичке индериоризације наставне технологије у дијигиталном окружењу. То је јуш да позитивни аспекти учења на даљину дају дугорочне резултате, да се препознају и на правилан начин инкорпорирају у образовни систем. Сходно томе, наредна истраживања би требало усмерити на испитивање наставника о фректорима онлајн-наставе, власитијој осјособљености за њену реализацију и о спрежности за унапређивање методичких ИКТ компетенција. Од посебног значаја ће бити сагледавање вредности и ораничења онлајн-наставе у контексту дефинисаних независних варијабли истраживања.

Кључне речи: образовање на даљину, онлајн-настава, образовне платформи, вирус корона, стипије наставе