The predictive effects of students' perception of teaching practices in TV instruction on students' self-efficacy[1]

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The COVID-19 pandemic forced school closures worldwide. TV instruction became one of the main distance-learning modalities across the globe. Given the scarce evidence of effects of TV instruction on students and broad evidence that quality of teaching is a vital factor of students' achievements and motivational beliefs, the main objective of this study is to examine the relationship between the perceived quality of TV teaching practices and one of the most important student outcomes – academic self-efficacy. Sample consisted 1904 primary and lower secondary students. We constructed two measures of self-efficacy: a general measure of student's self-efficacy with regard to the subject and a situational measure of self-efficacy towards the current TV lesson. Students' perception of teaching practices was measured by a composite scale made of ten statements. We conducted regression and mediation analysis in order to identify potential mediation of general self-efficacy in the given subject. Students' perception of teaching practices was found to be a significant predictor that explained 40.55% of the variance of situational self-efficacy towards the current lesson, and the 14% of total effect was mediated by general students' self-efficacy. The results indicate that, even in the indirect and asynchronous TV instruction, teachers can nurture student self-efficacy towards current lessons and tasks by creating a supportive environment, providing clear representation of knowledge, emphasizing the relevance of the learning content by linking the new material and concepts to the students' life experiences and prior knowledge, and by giving challenging tasks to enhance students' engagement.

Keywords: TV instruction, academic self-efficacy, teaching practices, educational effectiveness

Introduction

Teachers matter **but do they matter in TV instruction?** Many influential studies and meta-analyses (see Hattie, 2009; Marzano, 2003; OECD, 2005; Scheerens, 2016) showed that among many different influences on learning,

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including students' homes and socio-economic backgrounds, schools, teachers and curriculum – teachers can be considered as one of the strongest predictors of students' outcomes. Aside the general consensus that teachers can make a difference, the key question is which factors that come from teachers have the strongest effects on students' academic and non-academic educational outcomes. Hattie, who synthetized over 800 meta-analyses, warns that only teachers who use highly effective teaching practices, set high expectations for all students, and create positive climate have relatively high effects on students (Hattie, 2009, pp. 126). The most recent meta-analysis, which presents the state-of-the-art in the area of effective teaching factors, was conducted by Scheerens (2016), who re-evaluated findings from the last 40 years of teaching effectiveness research. The teaching factors that had the highest effect sizes[3] on students' achievements included: "teaching learning strategies (0.21), teacher characteristics, such as high expectations and constructivist beliefs about teaching (0.15), a cognitively challenging teaching approach (0.13), a learning environment and support (0.11), a clear and structured teaching approach (0.13) and 'active' teaching, characterized by a variety of didactic approaches (0.12)" (Scheerens, 2016, pp. 195–196). There have been several attempts to combine the findings of numerous research studies and meta-analyses within a single theoretical model. One of the prominent models, which contains effective teaching factors identified by Scheerens (2016) (under somewhat different names), is The Dynamic Model of Educational Effectiveness (Creemers & Kyriakides, 2008). The model describes dynamic relations between four most important factors that have effects on students' outcomes: student, classroom, school, and system. When it comes to instruction, authors postulate eight factors of its effectiveness: (1) goal orientation, (2) structured presentation, (3) posing questions, (4) modelling, (5) application, (6) assessment and (7) management of time and (8) environment (Kyriakides, et. al, 2017, pp. 2; for further reading, see Creemers & Kyriakides, 2008). While individual teaching practices showed small correlations with students' outcomes, Muijs and Reynolds (2000) found that the composite variable of teaching quality explained large proportions of variance in student achievement, even after student background factors had been controlled for. This implies that the combination of many small individual teaching practices effects produces a large effect on students. Existing models of educational effectiveness have been used for various purposes: in basic research, for the development and evaluation of professional development programmes, but they are not fully applicable to TV instructions that has no direct interaction between teachers and students. For example, teachers in TV instruction do not have the opportunity to assess students' knowledge and skills, or to give them individualized feedback. However, in the circumstances of a pandemic that has been going on for more than a year

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3   The effect sizes are expressed as Fischer-Z coefficients, which can be interpreted as corre-
     lations (Scheerens, 2016:194).

PLAZINIĆ LJ.: THE PREDICTIVE EFFECTS OF STUDENTS' PERCEPTION OF TEACHING PRACTICES
IN TV INSTRUCTION ON STUDENTS' SELF-EFFICACY

261

and there is no indication that it will stop soon, it is important to examine whether a teacher can still make a difference in crucial outcomes, such as self-efficacy of students in distance learning, without the possibility of direct interaction, as is the case in TV instruction. It is important to obtain answers to these questions as hundreds of thousands of students around the world have participated in this type of distance learning starting from March 2020.

Namely, the COVID-19 pandemic forced school closures worldwide and countries had to find fast solutions to switch 1.6 billion of students to remote learning (UNICEF, 2020). Most countries have introduced some form of distance learning through a variety of media, starting from print-based learning, radio and TV broadcasting to web tools such as social media and learning platforms (UNESCO, 2021). The day after the Government of the Republic of Serbia declared state of emergency, TV instruction was launched on national television and, besides TV classes, students had interaction with their school teachers through Internet platforms or social media (Ministry of Education, Science, and Technological Development of the Republic of Serbia, 2020a). The video lessons aligned to the national curriculum were pre-recorded and available both online and on three national television channels according to the pre-known schedule (MoE of RS, 2020a). TV instruction was chosen as an optimal solution to increase access to remote learning in the given circumstances since it surpassed a "digital divide" between the disadvantaged and students that possessed more socio-economic and cultural resources. Namely, a survey from 2018, showed that 68 percent of households in Serbia had an Internet connection and 99.6 percent of households had a television (Statistical Office of the Republic of Serbia, 2018). In the light of this fact, it seems that TV instruction had the potential to provide all students with the same quality of teaching, regardless of their socio-economic opportunities (digital devices, tools, programmes or Internet access), as well as the level of digital competencies of students, their parents and teachers. During the last trimester of the 2019/2020 school year, a combination of digital (through different online platforms) and non-digital (through TV instruction) ways of remote education was used, but almost the whole population of primary school students (95%, according to MoE RS, 2020b) were engaged in TV instruction. According to a UNICEF report, TV instruction was also used globally in 87% of 135 countries that provided data (Lennox, Reuge, & Benavides, 2021). More than a year later, almost one half of the students in the world is still in situation to be engaged in distance learning (UNESCO, 2021).

TV instruction (televised instruction, telecourses) is defined by Luskin's working group as video teaching, in which the learning of a certain subject is aligned with the established curriculum and standards of academic achievement (Luskin, 1983). It was widely used since the 1970s, when it was accompanied by a great research interest. The rapid progress of information

and communication technologies (ICT) reduced the need for TV instruction in the developed countries in favour of the web-based types of distance learning, and research interest in TV instruction declined. Available studies were mainly focused on comparing the effects of TV classes and face-to-face instruction in school. According to literature reviews of Machtmes and Asher (2000) and Ritchie and Newby (1989), several individual research studies found no significant differences between the effect of TV and face-to-face instruction on students' achievement (Clark, 1983; Dubin & Hedley 1969; Moore and Thompson 1990; Schlosser and Anderson 1994; Schramm 1962; Stickell 1963; Whittington 1987). There is one older literature review made by Schramm (1962), who reviewed 203 studies that had examined the effects of TV instruction in grades 3 to 9, which approximately corresponds with the age of primary school students in the Serbian education system. Schramm found that about one third of the studies indicated greater effectiveness of TV instruction, 11% of them showed lower effects and the remainder showed no differences in those two. Hence, he concluded that the modality of instruction (TV or face-to-face) was not a significant factor of students' achievement.

When it comes to non-cognitive educational outcomes of TV instruction, there are only a few older studies, mostly focused on comparing the attitudes towards the subject, teachers or the future profession of students who attended traditional classes and those who attended TV classes. Most of these studies are focused on university education and the professional development of employees. For example, Snowball and Collins (1980) found that students who watched TV lessons had a significantly more positive attitude towards the profession of an accountant than the group of students who attended accounting classes in the traditional way, although the difference was small. On the other hand, Moskowitz (1964) showed that the fifth– and sixth-grade primary school students had more negative attitudes towards learning the foreign language via TV. In addition to these disagreements in evidence, we can add that previous findings of the effects of TV instruction that is planned and voluntary accepted by students and teachers cannot easily be extrapolated on the TV instruction during the COVID-19 pandemics. The latter was sudden, unprepared, for both students and teachers, and took place in a situation of health crisis, that consequently caused a large-scale economic and psychosocial crisis. In addition, evidence collected decades ago may be of limited usefulness in "the digital age" that is characterized by enormous changes in ICT and a widespread use of computers and mobile devices which potentially changed teachers' and students' views on the use of technologies for educational purposes.

We found no studies on the effects of TV instruction on students' self-efficacy, which is essentially an important factor of learning both in regular classroom (see Džinović & Vujačić, 2017; Hattie, 2009; Jakšić et al., 2017, Jovanović, 2011; Pavlović-Babić, 2007) and emergency distance learning

during the COVID-19 pandemics (Pelikan et al., 2021). Namely, Pelikan and his colleagues examined self-efficacy, motivation and procrastination of secondary school students in Austria during the COVID-19 school closures, and asked them to describe their difficulties, gains and areas where they needed support. Results showed that all students faced similar problems during emergency distance learning, but those who had higher self-efficacy perceived the situation of independent distance learning as less stressful, they had better strategies for managing time and resources for learning and they had less need for support. This finding emphasizes the importance of self-efficacy in distance learning as the essential non-cognitive educational outcome.

"Whether you think you can or you think you can't – you're right." This widely used phrase, attributed to Henry Ford, strongly attests to the importance of self-efficacy for the success in any area of human life. It is based on the idea of the priority of the subjective experience of personal competence in the realization of various goals over real capacities (e.g. knowledge and skills). Self-efficacy refers to the extent of confidence individuals have in their ability to perform the tasks that are required of them. In his socio-cognitive model, Bandura defined it as „people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, pp. 391). Self-efficacy can predict the level of engagement in a given activity and the level of persistency and resistance when facing obstacles (Schunk & Pajares, 2005). Translated to learning, this refers to students' beliefs about their learning capabilities, e.g. to successfully conduct a particular task or to master the subject material. Self-efficacy is a subject-specific phenomenon, e.g. a person may believe that he or she is very good at languages but unsuccessful at math. Moreover, self-efficacy can vary within the same subject in relation to specific areas and specific tasks. In this case, we call it situational self-efficacy. It concerns the answer to the question: „Can I do this task in this situation?"

The importance of self-efficacy for educational processes and outcomes has been recognized both internationally and in Serbia. Linnenbrink & Pintrich (2003) emphasize the role of self-efficacy in behavioural (hard working, help seeking), motivational (intrinsic motivation, positive emotions towards learning) and cognitive engagement (paying attention, using learning strategies). Large-scale studies on representative samples of students in Serbia showed that self-efficacy explained about 10% of variance of the test score in mathematics, both in the first and second cycle of compulsory education (Jakšić et al., 2017, Pavlović –Babić, 2007), in sciences (Džinović & Vujačić, 2017) and reading literacy (Jovanović, 2014). It is the strongest predictor of *progress* in reading literacy (Jovanović, 2014). Self-efficacy is related not only to students' academic outcomes (achievement, task participation) but also to socio-emotional outcomes (i.e. depression and anxiety) (Hattie,

2009). It seems plausible to assume that self-efficacy is likely to be even more important in the current context, because of the numerous challenges posed by distance learning, for instance, to remain focused and motivated in spite of the lack of teacher direct and immediate supervision and feedback.

Bandura (1997) considered that self-efficacy had four main sources: *mastery experience* (perception of previous achievement in a related task/ subject), *vicarious experience* (observing success or failure of the model that students see similar to themselves), *social persuasions* (encouragement and feedback of significant others, especially teachers) and *presence of emotional and physiological arousal or anxiety* (that are interpreted by students as an indicator of personal in/competence). It can be assumed that teachers have an impact on all four sources of self-efficacy. Teachers who give clear instructions and explain the material in a simple way by linking it to students' prior knowledge and experience can facilitate success in a learning activity, task or content. Teachers who encourage all students by expressing positive beliefs in their capacities can convince the students that they are capable of successfully mastering a given task or material. Teachers who publicly praise students' success can encourage vicarious reinforcement and those who create a positive socio-psychological climate, reduce anxiety and promote self-efficacy beliefs.

The Aim of the Present Study

The main question of this study is whether the above-mentioned teaching practices still have effects on students' self-efficacy, given that TV instruction is based on one-way communication. Hence, given the scarce and contradictory evidence of the effects of TV instruction on students' non-cognitive outcomes, and the broad evidence that quality of teaching is a vital factor of students' outcomes, the main aim of this study is to examine the relationship between the perceived teaching practices in TV instruction and one of the essential outcomes – academic self-efficacy, i.e. confidence in own ability to perform the tasks that are required. Considering the lack of interaction in TV instruction, we can assume that the domain of instructional support from the model of effective teaching by Hamre et al. (2013) has the greatest potential to affect students' learning, motivation, and self-efficacy. Based on this model and the studies reviewed by Scheerans (2016) in his meta-analysis, we make an assumption that, in order to increase positive effects on students' self-efficacy, teachers have to give clear and engaging explanation which corresponds to prior knowledge and experiences of students, present subject matter using concrete examples, and vary representation formats. Further, teachers should use interesting

pictures and learning materials and give students a chance to cognitively engage by posing various questions.

More specifically, we aim to address the following research questions.

(1) How do students generally perceive the quality of teaching practices in TV instruction?

(2) How are students' perceptions of teaching practices in TV instruction related to their situational self-efficacy (their confidence in mastering the contents of a particular lesson)?

(3) Are the connections between situational self-efficacy and students' perceptions of the quality of teaching practices mediated by students' general self-efficacy in the given subject?

Methodology

Samples

The survey was conducted during May 2020. The sample of school subjects included the following: the World around Us (WAU; Serbian: *Svet oko nas*) and Nature and Society (N&S; Serbian: *Priroda i društvo*) for primary education (the first cycle of compulsory education in Serbia) and History, Biology, and Geography for lower secondary education (the second cycle of compulsory education) (Table 1). This choice was made in accordance with the assumption that teaching methods were similar in the given subjects (compared to mathematics, language and arts). The sample included 1904 students, from primary (23.84% of sample) and lower secondary education (76.15% of sample) who watched TV lessons of the selected subjects. When it comes to gender, 56% participants were female, and when it comes to the type of settlement, 62% were from cities, while the remainder of students lived in rural areas. Sample structure of by subject and grade is shown in Table 1.

Table 1
Sample structure by subject and grade

Subject	*n*	%	Grade	*n*	%
WAU	133	7.0	1st	79	4.1
N&S	321	16.9	2nd	55	2.9
Biology	597	31.3	3rd	149	7.8
Geography	477	25.0	4th	172	9.0
History	376	19.7	5th	383	20.1
Total	1904		6th	380	19.9
			7th	366	19.2
			8th	320	16.8
			Total	1904	

Procedure

During May 2020, we invited schools to participate in research using publicly available database of public schools. We asked the school principals or psychologists to distribute the links to survey to the teachers of the mentioned subjects, and the teachers contacted students. Schools were asked to provide parental consent, and data were collected completely anonymously.

Measures

Self-efficacy: We used two separate measures of self-efficacy: a general measure of students' self-efficacy with regard to the subject (GSE), and a situational measure of self-efficacy specifically towards the current TV lesson (SSE). GSE refers to the judgments of one's own success in a given subject, and it was measured with 5 items. The content of the statements covered by the scale is based on an overview of the relevant literature in the field of academic self-efficacy (i.e. *I think I'm really good at this subject. I am successfully coping with the requirements of this subject.*) and two items are similar to the items that measure subject self-efficacy in international studies we referred to. One of them is similar to the item that measures self-efficacy in the TIMSS 2015 context questionnaire framework (*I learn topics from this subject quickly*; Hooper, Mullis & Martin, 2013, with an exception that the subject was predefined in TIMSS) and the other is similar to the item from PISA conceptual framework (*It's easy for me to understand even the most difficult topics in this subject*; OECD, 2009). The GSE score was calculated as a mean of five items and the reliability of the scale was good (α= .83). In order to determine situational self-efficacy, we asked the participants to evaluate their capability to master the content of a particular lesson via pairs of opposing statements regarding their confidence in learning of the specific content on a 10-point scale (for example (1) *I've failed to learn anything in this lesson* to (10) *I've learned this lesson well*). The SSE score was calculated as a mean of four items and the reliability of the scale was good (α= .82). We conducted a principal component analysis and revealed unidimensionality of constructs.

Starting from the finding that not a single teaching practice has a large effect on students' outcomes, but a lot of small effects stem from different efficient practices (Creemers & Kyriakides, 2008; Hattie, 2009; Scherens, 2018), students' evaluations of the quality of teaching practices (SPTP) were measured by a composite scale made of ten statements. The scale is somewhat similar to the *Students' Views on Engaging Teaching* (SVET) scale from TIMSS 2015, but adapted for TV instruction that is characterized by one-way communication (items implying interaction are excluded, e.g. *My teacher*

tells me how to do better when I make a mistake; *My teacher listens to what I have to say.*). We preserved two original items from SVET (*The teacher does a variety of things to help us learn.* and *I am interested in what the teacher says.*). Also, we adapted two items for TV instruction and made six original items. We started from a set of effective teaching practices extracted from Scherens (2018) meta-analyses and The Dynamic Model of Educational Effectiveness (DMEE; Creemers & Kyriakides, 2008) and then analysed 12 TV classes (two classes of every subject) to assess which of them could be implemented in TV instruction that is characterized by one-way communication. Further, we considered the practices from DMEE, described on page 2. There were not (1) goal orientation practices from the DMEE model in TV classes (in terms of pointing out educational outcomes, i.e. what students would know and be able to do) but there was some kind of emphasising the importance of the topic of the lesson. Hence, we created an item that reflects student perception of the lesson (*I feel this is important for me to know.*). We assessed (2) the structured presentation from DMEE with three items (*The teacher explains very well. The images that teacher uses are incomprehensible. It's really hard for me to understand this teacher.*). (3) Posing questions was operationalized by one item (*The teacher asks lot of questions to give us opportunity to test our knowledge.*). (5) Application was represented by two items (*The teacher connects the material with things outside of school. I don't see any connection of what I heard with my life.*). (6) Assessment was not present, as well as (4) modelling. (7) Management of time was represented by one item (*The teacher talks too fast.*) and (8) stimulating environment was represented by two items we kept from the SVET described above. The students answered by rating statements on a five-point Likert scale. The ratings on the negatively formulated items were recoded to inverse values and the score on the scale was calculated as a mean value for all 10 statements. The scale had good reliability (α = .82) and principal component analysis revealed one-dimensionality of construct. Finally, we examined construct validity by checking correlations between the average ratings of all students that had watched the same class on SPTP and observational ratings of the author of this study for the same classes on the protocol that measures similar constructs, $r = .74$, $p < .000$ (see Plazinić, 2021).

Besides these measures, we used sex and grade as control variables.

Analyses

All statistical analyses were performed using the SPSS Statistics for Windows (IBM Corporation, 2012). The macro PROCESS was used for the analyses of potential mediation effects (Hayes, 2018).

Results

In order to determine how students generally perceive the quality of teaching practices in TV instruction and how they rate their subject-specific self-efficacy, as well as the confidence in mastering the contents of a particular lesson in TV instructions, we conducted a descriptive analysis. In addition, we performed a correlation analysis to determine how students' perceptions of the quality of teaching practices in TV instruction were related to their general subject and situational self-efficacy. Means and standard deviations of all the variables in this research and correlations among all measures are shown in Table 2.

Table 2

Means, Standard Deviations and Correlations for the measures

Variables	*Min*	*Max*	*M*	*SD*	SPTP	GSE	SSE
1. SPTP	1.80	5.00	3.98	.73	1	.386**	.604**
2. GSE	1.60	5.00	3.94	.85		1	.419**
3. SSE	1.00	10.00	7.84	2.01			1

Note. *p <.05; **p <.01.

On the average, students perceive the quality of teaching practices moderately high (Table 2). More precisely, students report that teachers generally explain the lessons well, have a generally appropriate pace of presentation, and use adequate visual material to help explain facts and concepts of a given lesson in an obvious way. On the average, students think that teachers make moderately high efforts to help students master the lesson by employing different ways of explaining, making meaningful connections between the material and students' school– and life-experience in order to make the material relevant to them. Teachers relatively frequently ask questions which help students to test their knowledge and understanding. Students' confidence in the given subject, as well as their confidence that they will successfully master the current lesson, are higher than the theoretical average of the scales and can be assumed moderately high on the average.

In order to examine how the measures of students' perception of teaching practices relate to student outcomes, situational and subject-specific self-efficacy and the perceptions of teacher practices were checked by a simple correlation analysis (Table 2). All correlations were statistically significant and positive. As shown in Table 2, students' perception of teaching practices has stronger correlations with situational self-efficacy towards the current TV lesson than with the general measure of students' self-efficacy with regard to subject. Further, results show that students' general self-confidence in a given subject is significantly related to their current self-confidence regarding mastering a given lesson, as expected, but this connection is less intense than the connection between situational self-efficacy and the perception of teaching practices quality in a given lesson.

The results of hierarchical regression analysis (Table 3) show that students' perceptions of teaching practices are a significant predictor of SSE. The direction of the Beta coefficient indicates the following: the more positive students' perception of teaching, the higher their self-confidence that they will master the lesson. The introduction of general subject self-efficacy in the next step of the analysis is also a significant predictor. It increases the percentage of the explained situational self-efficacy (from 36.5% to 40.6%), but it slightly decreases the independent contribution of the perceptions of teaching practices in its prediction. This presumes a potential mediating role of GSE in the relationship between SPTP and SSE.

Table 3
Students' perceptions of teaching practices and general subject self-efficacy as the predictors of situational self-efficacy towards a TV lesson (N=1904)

Model	R	R2	Change in R2	β	p
Step I	.604	.365			
SPTP				.604	.000
Step II	.637	.406	.041		
SPTP				.519	.000
GSE				.219	.000

To test whether general self-efficacy in a given subject served as a mediator of the relation between students' perceptions of teaching practices and situational self-efficacy, we used the macro program PROCESS in SPSS (Hayes, 2018). The outcome variable for the analysis was SSE, the predictor variable was SPTP, while the mediator variable was GSE. Since there are possible sex and age (grade) differences in self-efficacy, we introduced these variables as covariates in further analyses to control for their effects. Results showed that the indirect effect of SPTP on SSE was significant [Effect = .08, 95% C.I, (.0535, .1046)]. Figure 1 represents the model and standardized coefficients are shown on arrows.
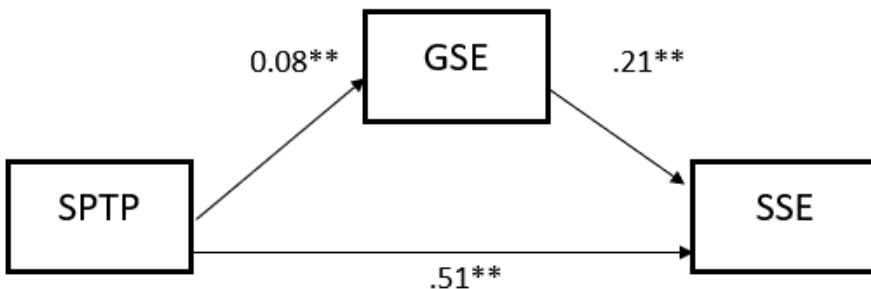

Figure 1. Standardized path coefficients of the research model (**p <.001)

We can explain 41% of situational self-efficacy (R^2 = .41, p<.00) from students' perceptions of teaching practices, with general self-efficacy serving as a mediator of that relationship, and sex and age as covariates. The direct effect of SPTP on SSE was significant (B = .51, p <.000), but the association of SPTP with SSE was mediated by general self-efficacy in a given subject (B = .08, p <.000), when we control for sex and grade. However, the size of this mediation effect was small. The proportion of the total effect of students' perception of teaching practices on their situational self-efficacy towards the current TV lesson that operates indirectly through general self-efficacy in a given subject is 13.99%, and nearly 86% of the effect functions directly.

Discussion and conclusion

Just as the pandemic came on abruptly, the measures of social distancing, necessary for its prevention, also came unexpectedly and without prior preparation. As part of these measures, distance learning entered the educational scene around the world, with TV instruction as a common solution, which aimed to make teaching available to all students, regardless of their socio-economic status, the level of development of their digital competencies, or the competences of their parents and teachers. Although praised in the media as a quick adaptation to emerging circumstances, TV instruction has also raised concerns about its effects on students and their educational outcomes.

A central question in this research was understanding whether and to what extent the quality of instruction in TV lessons had the effect on important student outcomes such as self-efficacy in a given lesson. Self-efficacy explains about 10% of variance of test scores in different school subjects (Jakšić et al., 2017; Pavlović –Babić, 2007; Džinović & Vujačić, 2017; Jovanović, 2014) and enhances behavioral, motivational and cognitive engagement of students (Linnenbrink & Pintrich, 2003). Even more, self-efficacy is not just a precursor of academic goals, but also of other psychologically important outcomes such as the level of persistency and resistance when facing obstacles (Schunk & Pajares, 2005). In the situation of the COVID-19 crisis that dramatically changed the ways of teaching and learning, students' confidence in their abilities to perform tasks that are required predicts the level of the stress they perceive and coping strategies they use (Pelikan et al., 2021). Given the great importance of self-efficacy, we wondered whether teachers, as essential actors in the educational process and important factors of educational effectiveness, had any effect on it. In particular, we wished to investigate whether the way in which students perceived teaching practices in a relatively new form of teaching, TV instruction, was related to their confidence in capabilities to successfully conduct a particular task or to master subject material of particular lesson. Numerous empirical data have shown that the quality of

teaching affects the quality of students' educational outcomes in learning and in non-cognitive achievements, but does the perceived quality of instruction affect self-efficacy even when teaching takes place through the media such as TV, where students have no direct contact with a teacher? This was the main question of our research. For this purpose, we constructed the Students' perception of teaching practices scale, based on the selection of the most effective teaching factors found in meta-analyses and postulated in The Dynamic Model of Educational Effectiveness (Creemers & Kyriakides, 2008). The selection was made considering whether the given practices can be found in TV instruction. In addition to the main question, we wanted to find out how students in compulsory education in Serbia, who participated in TV instruction for the first time during their schooling, evaluated the teaching practices in this form of distance education, and how low or high they assessed their self-confidence to master the given TV lessons. Further, we wanted to find out if their general self-confidence in a given subject mediated the relationship between situational self-efficacy and the perception of teaching practices.

The results of descriptive statistics showed that students, on the average, evaluated the desirable teaching practices in teaching via TV relatively high. This finding supports the conclusion that the teachers who participated in TV instruction showed a satisfactory level of skill and resourcefulness, judging by the experience of students, despite their unpreparedness for this situation. Also, on the average, students' perceptions of confidence in a given subject and confidence that they would successfully master the current lesson were moderately high as well (higher than the theoretical average of the scales). This finding addresses the concerns about students' coping with this unprecedented situation.

According to our central question, regression analysis showed that the way in which students perceived the teaching practices explained more than a third of their self-confidence that they would successfully master the given lesson. It is important to notice that we did not measure what the teacher actually did, but how students perceived what the teacher did. When students' perception of teaching practices increases by one unit, situational self-efficacy increases by 0.52 (see *b* coefficient in Table 2). Although regression analysis cannot reveal causal relationships, we can conclude that the students' perception of teaching practices and their situational self-confidence are moderately inter-related. The better the assessment of the teacher's way of explaining, the pace of presentation, and making connections with school and extracurricular knowledge, the greater the students' confidence that they had mastered the subject content of the given lesson. Students respond with increased self-confidence when they perceive that the teacher employs questioning practices by giving opportunities to students to test their learning, when various representation formats are used (e.g. pictures, photographs,

diagrams, videos, simulations; modelling abstract concepts) and efforts are invested to make content more comprehensible, relevant and applicable. Mediation analyses showed that there was a mediator effect of general self-efficacy towards the given subject, but very limited in strength (more than four-fifths of the perceived teaching effect on situational self-efficacy comes directly from the perception of teaching, and less than 15% indirectly, from general subject self-efficacy). It is possible that students who have more self-confidence in a given subject based on previous educational experiences cope better in the conditions of distance learning, and thus perceive the teaching, as well as their capabilities, to respond to current lesson requirements somewhat better.

The results indicate that the quality of teaching, based on students' perceptions, affects their confidence in own capabilities to perform the tasks that are required. In a practical sense, these results can be used for designing the appropriate practices to encourage the desirable students' outcomes. Namely, in the case of re-transition to TV instruction, this research could inform teachers and educational authorities on teaching practices that can contribute to the encouragement of desirable non-cognitive educational outcomes, which are expected to have a reciprocal effect on the cognitive achievements.

The limitation in applying the results of this study lies in the way of operationalization of the construct of teaching practices. Namely, the presence of different effective practices was not measured directly, but through students' perceptions. We can take structured presentation as an example. We did not directly observe or ask students how often the teacher structured lectures, how often s/he gave examples of abstract concepts etc. – we simply asked them to evaluate how well the teacher explained, how understandable s/he was, how comprehensible are the images used etc. The same is true for other teaching practices. We hence suggest that the future studies employ qualitative analyses of students' experience of quality teaching, as well as systematic observation that could measure the frequency of effective teaching strategies and examine their relationship with students' outcomes. Therefore, from a theoretical point of view, this research was not intended to verify nor it can be considered as a direct confirmation of The Dynamic Model of Educational Effectiveness, but rather an indication in favour of it.

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Učenička percepcija nastavnih praksi kao prediktor učeničke samoefikasnosti u TV nastavi

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Pandemija COVID-19 dovela je do zatvaranja škola širom sveta. U ovim okolnostima, jedan od glavnih modaliteta učenja i nastave na daljinu postala je TV nastava. S obzirom na brojne dokaze da je kvalitet nastave jedan od ključnih faktora učeničkih postignuća, ali i motivacionih uverenja, kao i malobrojne podatke o efektima TV nastave na učenike, glavni cilj ove studije bio je da ispita odnos između percipiranog kvaliteta nastavnih praksi u TV nastavi i jednog od najvažnijih obrazovnih ishoda – akademske samoefikasnosti. Podaci su dobijeni od 1904 učenika, od prvog do osmog razreda, osnovnih škola tokom maja 2020. godine. Koristili smo dve mere samoefikasnosti: meru generalne predmetne samoefikasnosti učenika i meru situacione samoefikasnosti u odnosu na zahteve konkretnog TV časa. Učenička percepcija nastavnih praksi merena je kompozitnom skalom sačinjenom od deset tvrdnji. Podaci su analizirani regresionom i medijacionom analizom, kako bi se identifikovala potencijalna posredujuća uloga generalne predmetne samoefikasnosti u relaciji između percepcije nastavnih praksi i situacione samoefikasnosti. Utvrđeno je da je učenička percepcija nastavnih praksi značajan prediktor koji objašnjava 40,55% varijanse situacione samoefikasnosti, a 14% ukupnog efekta posredovano je generalnom predmetnom samoefikasnošću učenika. Rezultati pokazuju da, čak i u indirektnoj i asinhronoj TV nastavi, nastavnici mogu negovati samoefikasnost učenika stvaranjem podsticajnog okruženja, zadavanjem izazovnih zadataka, jasnom prezentacijom i naglašavanjem relevantnosti nastavnog sadržaja kroz povezivanje sa životnim iskustvima i prethodnim znanjima učenika.

Ključne reči: TV nastava, akademska samoefikasnost, nastavne prakse, obrazovna efektivnost

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