

# TEACHERS' AND STUDENTS' ATTITUDES TOWARDS DOING HOMEWORK ASSIGNMENTS ONLINE

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**Abstract** – *Today, information and communication technology has a multiple role in teaching and is a source of various possibilities for organizing daily teaching, classes, but also homework assignments, which can now be done using digital tools. The authors explore the attitudes of students, but also teachers, regarding doing homework assignments online, and their perception of the importance of having online homework assignments. The method by which the research was conducted is a survey. Based on the results of the research, it was determined that over 70% of students accept online homework, because they gave the highest grades for this type of work. However, only 8.6% of teachers said that they fully agree, and 34.3% mostly agree that the online way of doing homework contributes to higher quantity and quality of completed assignments, which would ultimately contribute to better student knowledge.*

## I. INTRODUCTION

Modern society is a society of advanced technologies, which require knowledge, understanding and competence. That is why the progress of modern society in many ways depends on the ability to continuously learn, develop and apply new knowledge. Modern society is a society of knowledge, and thus, knowledge and competence (1) are basic assumptions of its development (2). In addition to that, technological progress over time has led to inevitable changes in education, which include electronic learning (e-learning). E-learning refers to learning with the use of information and communications technology (ICT), which has been present in teaching practice for over two decades. According to the definition of the *American Society for Trainers and Development* (ASTD), e-learning is a methodology used to deliver or enable the instructional content or learning experience by the use of electronic technology (3).

Based on research on the use of ICT in the Republic of Serbia, in 2019, the data obtained from the *Statistical Office* of the Republic of Serbia shows that 80.1% of households own an internet connector – which constitutes a 7.2% increase when compared to 2018 (4). It is also interesting that as

much as 93.7% own a mobile phone. Thus, the fact is that the generation being educated today is growing up in a digital environment.

The emergence of ICT demands new forms of interaction between student and teacher. The teacher is the main implementer of innovation in the field of teaching. As the result of scientific knowledge and technological development, it is rapidly changing, and it requires individuals constantly learning and improving - the acquisition of new knowledge, skills, competencies, and their applications in practice (5). The New Age is asking for a new strategy for organizing the teaching process, so the management of that process should be viewed in an interdisciplinary way, having in mind cybernetics, communication theory, new learning theories, the didactic doctrine about independent and research work of students, and so on (6).

The basic goal of implementing modern technology in teaching is to facilitate the acquisition of knowledge and make that knowledge more permanent. This depends not only on technical possibilities, but also on teachers, i.e. their readiness and expertise when it comes to working with modern technologies (7). Considering the fact that schoolwork continues in the form of homework, for twenty years research has been conducted to answer the question of whether traditional paper-and-pencil homework can be replaced by web-based assignments, and to what extent.

In 2020, despite the unusual situation the pandemic resulted in, teachers and students gave a very responsible and dedicated response. Namely, due to the announcement of the emergency situation in the whole country, web-based teaching has become part of our everyday life and enabled people to learn new things, work with modern educational applications, as well as communicate with colleagues and students in a different way. Even though it was unplanned, at least in this moment and form, it has become possible to see the advantages

and disadvantages of this kind of teaching, already covered theoretically through research, in practice. The research of the authors Bulić, M, Jelaska, I, Jelaska Mandić, P, confirms that e-learning is as successful as traditional teaching, so it can surely be used under the conditions when pupils cannot be present in the regular classes in the classroom (8).

The results of our research, done in First Obrenovac Elementary School in Obrenovac, show the readiness of teachers, as well as students, to adapt to the new situation and use it to further the accomplishment of their educational goals. The potential of web-based teaching and web-based homework has certainly not been realized to its full extent, but two and a half months of this kind of approach has been a valuable experience for both groups, as well as an opportunity to assess its pros and cons.

Research has been done on 113 students and 35 teachers within the framework of this paper. The research method was a survey. The attitudes of students and teachers when it comes to doing web-based homework were assessed, since the human factor cannot be separated neither from these kinds of relationships with the world, nor from their practical outcomes.

## II. LITERATURE REVIEW

Theory states that homework assignments and studying at home are “connected to students’ schoolwork, thus making classes and homework a didactic unity” (9). Independent work, studying and doing different kinds of assignments of varying levels of difficulty either continue the teaching process, or encourage and prepare the student for it (10). In order for the didactic function of homework assignments to be fulfilled, the assignments have to be looked over and checked. The author Kyriacou thus believes that “the teacher should check the homework to indicate the need to correct possible inaccuracies and to provide feedback to the students themselves as well as their parents” (11).

Theory offers different opinions; one of the opponents of homework is Glasser, who sees „it as a coercion against the student, burdened in her/his free time“ (12). In contrast, Painter believes that „homework is *an extension of the classroom* learning that allows students to process the information they receive in class“ (13). However, Cooper believes that students can do homework when they want in their free time outside of school (14).

ICT has a manifold role in teaching today and offers endless possibilities for organizing everyday teaching and classes, but also homework

assignments, which can now be done using digital tools. Even though this practice is widespread in some countries, in some states it has not been fully researched or applied.

Web-based homework systems can provide an affordable alternative to traditional approaches to administering homework (15). As part of this trend, many software packages have been developed, allowing students to complete homework assignments on-line (16).

Web-based homework as a course element has even more positive effects than paper-and-pencil homework affirm by some researchers (17)(18). For example, Dufrense *et al* compared the effect of the web-based homework and the paper-and-pencil homework on student achievement as measured by exam performance (17). They found both that web-based homework led to higher overall exam performance. However, the study conducted by Bonham *et al* found that no significant differences in student performance were found that could be attributed to the homework method used (19).

The research by the author Demirez encompassed a physics course, with 37 students who did their homework in the traditional way, and 41 students who did e-homework. In this study, web-based homework system is developed to assess students’ introductory physics course performance. Later on, these results are compared with paper-based homework performance for mid enrollment physics courses. One of two identical sections of introductory physics course students received paper-based, hand graded group homework while the other received the individual web-based homework. Then two groups’ on conceptual and problem-solving performance measures are compared. No significant differences were found in students’ *Force Concept Inventory* (FCI) test scores. However, average homework performance scores were significant that could be attributed to the homework method used in favor of paper-based homework group (20).

The author Deminez (20) stresses that the possible constraints to paper-based assessments may be compensated by technology:

1. The constraint is that there is a problem of displaying multimedia works using pens and paper.
2. Computers could make possible the effectiveness in recording and compiling the results of scoring/commentary. In addition, coupled with appropriate computation functions, it can even do speedy calculations as well as make quick summaries and

presentations of the records of assessment to provide users immediate feedback.

3. Web-technology could provide students with more opportunities of peer interaction beyond the constraints from time and locations. The web-based environment is characterized by its accessibility at any time; however, it is possible to conduct activities either within the classroom or in after-class situations.
4. It can be increased the diversity of teachers' implementation of self- and peerassessment.

The positive characteristics of web-based homework assessment system could be summarized as follows (19)(20) (21)(22):

- **Pedagogical approaches.** Using automated submission and scoring of assignments, teachers, can give students more frequent assignments and more questions on each assignment than is possible with traditional methods, thus increasing the time that students spend studying material, answering questions and solving problems.
- **Immediate feedback.** With computer-aided assessment, students can receive immediate feedback about their progress. Surveys given to students indicate that immediate feedback is one of the most appreciated aspects of web-based assessment.
- **Decreased administrative effort.** Automated grading makes possible continual administration of homework, thus increasing the amount of time students spend on academic assignments (23).
- **Multimedia-enhanced questions.** The web's capabilities allow questions that include video, animation, simulation, or audio (23).

The negative characteristics of web-based homework assessment system could be summarized as follows (20)(21)(22):

- **Failure of observing students works.** When grading, it is useful for teachers, to view students' work, check their diagrams, and follow their reasoning.
- **Less variety of questions and grading methods.** Automating the grading process eliminates certain types of questioning and grading. However, there are new types of questions that can be delivered online that cannot be delivered on a piece of paper.
- **Security issues.** If the web is used for evaluation, security issues inevitably arise.

- **Technical difficulties.** When using the web for assessment, teachers, must realize that technical problems could occur.

The research by authors Jeremy Roschelle *et al* which was published in 2016, "Web-based math homework increases students' accomplishments" (24), was done on 2850 students. In a randomized field trial with seventh-grade mathematics students, this authors evaluated whether an educational technology intervention increased mathematics learning. Authors predicted that combining an web based homework tool with teacher training could increase learning. They used the online tool ASSISTments which: (a) provides timely feedback and hints to students as they do homework and (b) gives teachers timely, organized information about students' work. This authors analyzed data from 43 schools in Maine (USA), a state that provides every seventh-grade student with a laptop to take home. Results showed that the intervention significantly increased student scores on an end-of-the-year standardized mathematics assessment as compared with a control group that continued with existing homework practices. The authors conclude that students with low prior mathematics achievement benefited most.

The research done by authors M. Bulić and V. Kostović Vranješ (25) in order to determine the impact of the application of e-learning on student self-responsibility in general, and in particular in completing homework assignments in Science and Biology classes, a study was conducted on a sample of eight primary school classes divided into two groups: the experimental, using fully online e-learning resources, and the control group, using modern forms of active learning. The homework assignments for the students of both groups were the same, while the way of receiving homework assignments, carrying them out and submitting them was different, either in e-surrounding or traditionally. Although the analysis of the results of the homework assignments done by the students of both groups shows equal student success, the study registers a complete self-responsibility of the students involved in e-learning via Moodle platform. The research findings presented in this paper indicate that Moodle e-learning has a greater impact on student self-responsibility in doing their homework, and can therefore serve as a stimulus for teachers practitioners to apply e-learning systems in the teaching process in general, and in particular for independent student activities such as homework assignments (24).

Author T. Gok, assessed the effects of web-based homework and paper-and-pencil homework on student achievement and compared them in his

paper by conducting conceptual tests, exams, and homework assignments. The study was performed with two groups (287 students) during three semesters at a public university (23). Of the two identical sections of an introductory calculus-based course, students in one section received paper-and-pencil homework, while the students in the other section received web-based homework. The results obtained from the study were evaluated statistically, and it was found that there was not any significant difference in conceptual test and exam scores between the two groups (throughout the three semesters). However, the homework performance scores for the web-based homework group were higher than the performance scores of the paper-and-pencil homework group students.

Paper “Online homework, help or hindrance: What students think and how they perform“, by M. Richards-Babb, J. Drelick, Z. Henry and Robertson-Honecker, Department of Chemistry, West Virginia University, gave the results of the conducted research and survey on student achievement (26). Research has shown a significant increase in student test performance after putting online homework into practice. Namely, the authors M. Richards-Babb, J. Drelick, Z. Henry and Robertson-Honecker decided to introduce online homework in their department and examine the results of the success of such a practice. During the semester, 18 mandatory online homework assignments were determined. Each homework consisted of 19-20 questions of different format (rounding off the correct answer, correct / incorrect, text entry, etc.). Students had the possibility to try and give their answers for three times, and each homework was available online for 3-7 days after the first publication. After the semester, students completed a survey assessing their experience of this practice based on their knowledge and achievement evaluation mark.

### III. RESEARCH METHODOLOGY

Doing homework online has a dual role. On the one hand, students get the opportunity for more creative expression and a large space for improving their knowledge while doing their school obligations. The teaching staff, on the other hand, gets the opportunity to have an insight into students work at any time and in any situation, which certainly contributes to a more objective view of knowledge and student progress.

The subject of the research is students and teachers attitudes towards doing homework online, i.e. their perception of the importance of doing homework online. The aim of the research is to determine the attitudes and behavior of teachers and students in the context of the new life environment

and obligations at school and awareness of the need for online participation in it, in order to prevent and find new ways of communication caused by new needs.

The quantitative method by which the research was conducted is a survey in a narrower sense about the attitudes and opinions of the mentioned respondents. By conducting quantitative research, accurate measurement and quantification of relevant indicators has been enabled. The value of this survey is limited, because the information obtained depends on the sincerity of the respondents and their ability to answer the questions objectively. It is possible that the survey is subject to epistemological and social limitations, in the sense that the respondents do not answer what they really think, but give answers that are in line with social values or their ignorance of the matter. That is why we consider the survey as only one of the phases of the research process and in that way we do not neglect other aspects of the research.

The technique of collecting information is an indirect survey, i.e. a paper questionnaire in which several questions are asked, mostly of closed-ended type, of which the first few questions are personal data about the respondent (such as the gender of the respondent). In addition, teachers and students were asked to answer the type of devices they used to access the Internet while doing homework online and which devices were most commonly used to send and receive homework.

It was then examined which application was chosen by the teachers and which by the students. A group of important questions follows. Students were asked if they used the Internet to expand their knowledge beyond what was required while doing their homework. Also, students answer to one question in the survey is important, and that was whether the availability of materials on the Internet and this way of doing homework can be helpful during regular classes. While on the other hand, the teachers were asked whether this way of doing homework can be of great help to students during regular classes.

What is the core of the survey is the question to teachers whether they think that this way of doing homework would contribute to a higher quantity and quality of completed assignments, and which would ultimately contribute to students better knowledge.

The questions are closed-ended with multiple choice answers. However, in one question, the respondents were asked with which grade from 1 to 5 they would rate the online way of doing homework.

### III. RESEARCH RESULTS

35 teachers and 112 students of the First Obrenovac School in Obrenovac participated in the research.

For the purposes of this research, two surveys were conducted in order to determine, on the one hand, the attitude of teachers, and on the other hand, students. Both surveys have ten questions. For certain questions, respondents were given the opportunity to mark more than one offered answer.

112 students participated in the survey, as follows: 34.8% of fifth grade students, 20.5% of sixth grade students, 27.7% of seventh grade students and 17% of eighth grade students. Of that, 48.2% are girls and 51.8% are boys.

On the other hand, 35 teachers participated, 57.1% of subject course teachers and 40% of primary school teachers, in addition to the principal and professional associates. It is important to note that as many as 51.4% of teachers are with 15 or more years of experience in education, 17.1% with experience between 10 and 15 years and 14.3% with experience between 5 and 10 years.

In addition to questions about personal data about the respondent, the following questions related to the type of devices used to access the Internet while doing online homework and to which devices were most commonly used to send and receive homework. Research data show that both teachers and students used e-mail the most to send and receive homework. But there is a difference when it comes to the devices they used to access the Internet during the whole teaching process. As many as 91.4% of teachers used a computer, while 71.4% of students used a mobile phone.

When asked which application they chose, the data show that 58% of students chose the Google classroom and 51.8% the e-mail, while only 12.5% opted for Viber. Teachers answered the same question differently. Email was chosen in 48.6% of cases, Google classroom in 40%. Based on these data, we learn that students are more adaptable to new technologies. The students were interested in the Google classroom, while most of the teachers decided to use the "familiar" application in the form of e-mail.

When asked which grade from 1 to 5 they would rate the online way of doing homework, 35.7% of students gave a grade of 5, and 37.5% a grade of 4. So, even over 70% of students rated this type of work with the highest grades.

The next question is: did they use the Internet during their work to expand their knowledge beyond

what was required, and as many as 78.6% of students gave an affirmative answer.

Then, the students answer to the next question in the survey is important, that is whether the availability of materials on the Internet and this way of doing homework can be helpful during regular classes too, 85% of students gave an affirmative answer.

When asked whether this way of doing homework can be helpful during regular classes, because they would have permanent access to students' assignments, over 45% of teachers said yes, while 31.4% were not sure.

To the next direct question to teachers whether this way of doing homework can be of great help to students during regular classes, only 8.6% answered that they agree completely, 37.1% that they mostly agree and 25.7% that they are not sure. Of these, 8.6% of teachers completely disagree with this type of work. We learn that the data given by teachers in their answers are different. This can be attributed to many years of teaching experience, but on the other hand, the years spent in the education of the surveyed teachers should also be taken into account. The question arises whether the answers would be different if the respondents were younger teachers who use modern information technologies more.

To the final question for teachers, whether they think that this way of doing homework would contribute to higher quantity and quality of completed assignments, which would ultimately contribute to better knowledge of students, only 8.6% said they fully agree, while 34, 3% mostly agree, 28.6% of teachers are not sure, and 11.4% of teachers absolutely disagree with this view.

### IV. CONCLUSION

It is needed to implement ICT and e-learning not only in the teaching process in schools, but to use them in designing different homework which students will receive, complete, send for correction, and receive feedback electronically.

The results of the research show a high level of students' knowledge when it comes to the use of modern technologies, whether they are devices or applications intended for education. In the survey, over 70% of students gave the highest grade for the online way of doing homework. That confirms that there is an adaptability of students to changes in the teaching process. Also, 85% of students think that the availability of materials on the Internet and the

online way of doing homework can be helpful during regular classes.

However, the data show that the opinion of teachers is different, because only 45% of teachers stated that this way of doing homework can be helpful during regular classes, because they would have permanent access to students' work. Also, when asked whether they think that the online way of doing homework would contribute to higher quantity and quality of completed tasks, which would ultimately contribute to better knowledge of students, only 8.6% said they agree completely, while 34.3 % mostly agree.

By introducing and continuing to use existing online teaching resources, traditional teaching can be greatly enriched, more diverse, and thus more interesting to younger generations accustomed to information technologies. However, by combining the highest quality elements of both types of teaching, the entire education system can be significantly improved.

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