Authors' Contribution:
(A) Study Design (projekt badania)
(B) Data Collection (zbieranie danych)
(C) Statistical Analysis (analiza statystyczna)
(D) Data Interpretation (interpretacja danych)
(E) Manuscript Preparation (redagowanie opracowania)
(F) Literature Search (badania literaturowe)

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ASSESSING ATTITUDES OF STUDENTS REGARDING E-LEARNING DURING PANDEMIC

OCENA POSTAW STUDENTÓW DOTYCZĄCYCH ZDALNEJ EDUKACJI W CZASIE PANDEMII

Abstract: The purpose of this paper is to present the results of research on assessing attitudes of Polish universities' students regarding e-learning in conditions of coronavirus induced pandemic. Appropriate research methods have been used to achieve this purpose, i.e.: participant observation, semi-structured interview and comparative analysis. As part of this research, the following research hypothesis was positively verified: the elimination of

traditional face-to-face education methods, in connection with the pandemic, and the introduction of only e-learning systems, did not cause discouragement to continue education and did not significantly reduce student satisfaction. The limitations of this study include i.e. conducting research only at a technical university, relatively high risk of bias due to the use of participant observation and a relatively small research sample.

Keywords: assessing student attitudes, student satisfaction, e-learning, higher education, global pandemic

Streszczenie: Celem artykułu jest przedstawienie wyników badań oceny postaw studentów polskich uczelni dotyczących zdalnej edukacji w warunkach pandemii wywołanej koronawirusem. Dla osiągnięcia tego celu zastosowano odpowiednie metody badawcze, tj.: obserwację uczestniczącą, częściowo ustrukturyzowany wywiad i analizę porównawczą. W ramach przeprowadzonych badań pozytywnie zweryfikowano następującą hipotezę badawczą: eliminacja tradycyjnych metod edukacji bezpośredniej w związku z pandemią oraz wprowadzenie wyłącznie systemów e-learningowych nie spowodowało zniechęcenia do kontynuowania edukacji oraz nie zmniejszyło znacząco satysfakcji uczniów. Do ograniczeń tego badania należy m.in.: prowadzenie badań tylko w ramach uczelni technicznej, stosunkowo duże ryzyko subiektywizmu ze względu na wykorzystanie obserwacji uczestniczącej oraz stosunkowo niewielka próba badawcza.

Słowa kluczowe: ocena postaw studentów, satysfakcja studentów, e-learning, szkolnictwo wyższe, globalna pandemia

Introduction

So far, research related to the COVID-19 pandemic focuses mainly on fields related to medicine and health sciences[1]. There are also many publications devoted to economic spillbacks and spillovers across the main economic blocs and global economy[2], as well as losses of economic activity during the pandemic observed at the level of individual countries' economies[3]. However, there may be an insufficient amount of research on analysis (such as influence of COVID-19 on education) and assessments of the attitudes of students continuing education during the pandemic.

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[1] D. Gondauri, E. Mikautadze, M. Batiashvili, M., *Research on COVID-19 Virus Spreading Statistics based on the Examples of the Cases from Different Countries*, "Electronic Journal of General Medicine" 2020, 17(4), em 209. https://doi.org/10.29333/ejgm/7869.
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The COVID-19 pandemic drives digital revolution in higher education[4]. Starting from the second quarter of 2020, a resignation on an unprecedented scale from traditional in-class face-to-face teaching in favor of online education could be observed all over the world. More than one hundred countries have introduced restrictions on the functioning of classical education systems, affecting more than half of the world's students[5]. The pandemic undoubtedly has a negative impact on the education sector and student outcomes[6]. Many countries, including China, have already gained a lot of experience in online teaching during the pandemic in higher education[7]. Research on the functioning of educational systems and the attitudes of university students enrolled in the pandemic should also be carried out in many other countries affected by this situation.

1. Research Methodology

To achieve the adopted purpose, which is to present the results of research on assessing attitudes of Polish universities' students who continue education in conditions of coronavirus induced pandemic, the following research methods were used: participant observation, semi-structured interview and comparative analysis. As part of the research, the following hypothesis was verified: the elimination of traditional face-to-face education methods, in connection with the pandemic, and the introduction of only e-learning systems, did not cause discouragement to continue education and did not significantly reduce student satisfaction. A significant reduction would mean that most students report a decrease in satisfaction, which is directly due to continuing their education during the pandemic. A semi-structured interview was conducted on a group of multiple students of a large Polish technical university who were educated remotely for the first time in connection with the outbreak of the pandemic. The research included students of first-degree full-time studies at the specialty of management. The surveyed students answered questions related to the selected issues and their personal experiences with online learning in pandemic conditions, and the answers concerned all subjects taught online within a given semester. They usually did not limit themselves to short answers but delivered longer explanations of their opinions concerning the questions asked.

[4]   W. Strielkowski, *COVID-19 pandemic and the digital revolution in academia and higher education*. Preprints, 2020 (April), 1–6. Retrieved from www.preprints.org [access: 20.10.2020].
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[6]   E.J. Sintema, *Effect of COVID-19 on the Performance of Grade 12 Students: Implications for STEM Education*, "Eurasia Journal of Mathematics, Science and Technology Education" 2020, 16(7), em1851, https://doi.org/10.29333/ejmste/7893.
[7]   W. Bao, *COVID-19 and online teaching in higher education: A case study of Peking University*, "Human Behavior and Emerging Technologies" 2020 2(2), https://doi.org/10.1002/hbe2.191.

As part of the research, opinions were collected on the following issues:

1) problems or stress experienced with the use of mainly IT tools in the learning process,
2) the need to learn new IT tools or being limited to previously known remote systems (which?),
3) technical problems related to the use of new education systems,
4) the impact of introducing new IT tools (what?) on the efficiency of student education,
5) usefulness of e-learning tools and possibilities of permanent replacement of traditional methods of education (also after the pandemic),
6) ease and simplicity of using distance learning tools to familiarize yourself with the teaching materials,
7) the problem of the quality and completeness of the materials available online (will they be enough to complete the final work on individual subjects?),
8) use of agile approaches in organizing tasks to be done (do students use them?),
9) planning to further improve the ability to use e-learning systems in the future,
10) no personal contact with lecturers and other students (is it important?),
11) possible health problems caused by sitting in front of the computer for too long,
12) problems with private life related to too many tasks to be performed,
13) increasing the amount of free time in connection with the introduction of distance learning and enabling the use of a flexible approach to time management,
14) quality of relationships with other students (maybe online contacts are sometimes better than personal),
15) freeing up more time as there is no need to waste it traveling to traditional classes,
16) willingness to restart traditional classes as soon as possible,
17) the possibility to submit additional comments not included in the above issues.

The studies conducted were not representative in nature and are only an incentive to further develop this type of research.

2. Results and Discussion

The results of the research carried out are synthetically presented below in the order of the previously mentioned issues.

Regarding the issues about problems or stress experienced in relation to relying mainly on IT tools in education processes, students mostly pointed to difficult communication on the part of some lecturers, long waiting time for answers to questions and giving grades for completed tasks even after several weeks of waiting. Sometimes it is difficult to understand well the intentions of lecturers and the instructions for exercises they prepare. From time to time, students experience technical problems due to poor quality computer equipment at home and slow internet connections. Some of the respondents felt more tired, worried about a worse diet

and overweight problems, they lacked group sports activities (it is difficult to motivate them to exercise alone) and the periods of activity, rest and going to sleep were disturbed. Some students emphasized that they felt no stress at all and they were good at using IT equipment.

In connection with the issues about the need to learn new IT tools, or to rely on previously known remote learning systems, most students highlighted that they had to master the Microsoft Teams program, which was accepted by the University as obligatory for remote classes. They emphasized they had learned to use other communication programs, such as Skype, FB live, Zoom, Discord etc. Many saw the necessity to learn unknown software as an opportunity to improve their competitive position on the labor market.

Regarding the issues about possible technical problems related to the use of the new education systems, most students stated that they had not encountered any serious technical problems when using the education systems. However, they drew attention to certain problems occurring, for example, during meetings on MS Teams (interferences in connection, poor sound quality), which result from still low-quality Internet connections, as well as poor equipment used by students or lecturers. For some, the problem was the lack of a webcam, a malfunctioning microphone, and they pointed to problems with joining the classes in progress, despite the fact they had signed up for these classes earlier. Students sometimes claimed that organizational difficulties with the correct exchange of information between the lecturer and students were more troublesome than technical problems.

When asked whether the use of new tools had improved the efficiency of their education, most students stated efficiency remained at a similar level despite the transition to a remote form. They especially liked the recording feature, as in that case they did not have to prepare their notes. In the case of group exercises and discussions, the remote form was less well received and then the efficiency of remote learning was much worse. The awareness of meetings being recorded discouraged students from speaking. Many of them found that their efficiency increased because finally (in their opinion) they did not have to use books in libraries, as then they could record everything during the meeting within MS Teams.

Other issues related to the usefulness of e-learning tools and the potential possibility of a permanent replacement of traditional education methods (also after the pandemic). The respondents argued that it was more likely in the case of lectures and to a lesser extent in exercises (face to face discussion has its undoubted advantages). Students especially like the possibility to use the recordings of specific lectures multiple times. In the case of exercises, design and laboratory classes, it is more convenient to conduct them in a traditional form, and in the case of many engineering laboratories it is practically impossible to run them remotely. They suggested only consultations could take place remotely to support exercises and

laboratories, which should be carried out in a traditional form. Also, in the case of classes that require students to acquire and check soft skills on an ongoing basis, team collaboration, etc., no e-learning tools will replace real meetings, interactions and noticing certain problems and behaviors.

When asked about the ease and user-friendliness of teaching materials available in e-learning systems, most students suggested the lack of difficulties and the relative ease of using this type of material. They also pointed to the positive aspects of the period of remote learning, consisting in a more structured approach and improved diligence of lecturers in the preparation and remote sharing of teaching materials. In the times of education in a traditional form, lecturers often sent materials to some students via e-mail, and sometimes these materials did not reach everyone in a timely manner. Currently, specially prepared remote learning systems operating on the basis of the Moodle e-learning platform are used. Some students suggested, however, that such platforms and teaching materials available there play only temporarily such a significant role, and for them they will never replace traditional teaching methods, but at most they can only be an additional support and complement.

The issues of the quality of the materials available online and whether they are sufficient to complete assignments in individual subjects raised some emotions. Students reported that for most subjects, the online materials were sufficient to complete assignments. However, there were subjects for which the requirements related to the implementation of specific tasks were too high, and the access to literature and materials was insufficient, or the materials made it very difficult to complete the assignments. Some lecturers did not provide enough time for one-on-one meetings, live consultations and sometimes avoided them and limited themselves to conducting classes remotely. From time to time the presentations prepared by the lecturers were too poor and students did not like being referred to literature studies to which they were not sufficiently motivated. The most desirable situation was the preparation of materials available in remote education systems in such a way that students would not have to search for other didactic materials, e.g. in a library.

Some students affirmatively answered the questions about learning to use agile approaches in the organization of tasks to be performed, but indicated difficulties in the implementation of such solutions at home, when other household members did not facilitate it and the willingness and motivation were lost. Most of the students understood the need to learn and apply this approach, which is especially useful for people who engage in many tasks, e.g. in student research clubs, student government, social projects and profit-oriented activities. The use of agile approaches also makes it easier to find time for relations with other people and socializing.

When asked about future intentions related to the improvement of skills in the use of e-learning systems, practically all students answered in the affirmative. Most of them liked learning new e-learning tools and computer programs as, usually, techni-

cal students enjoy it. Many students emphasized that they were aware of the gaps in their knowledge of e-learning systems and the need to develop it in the future.

Referring to the lack of personal contact with lecturers and other students, the answer was usually given that such contact was actually missing, because conversations using various e-communication methods such as e-mail, messaging, voice call, social media, etc. will not replace real meetings, conversations, spending time together, etc. Students felt the negative effects of the lack of personal contact not only due to the limitations in developing social life, but also pointed out that they longed for solving tasks together in groups during personal contact with others students and opportunities resulting from live consultations with lecturers. They also emphasized that remote presentations differ significantly (they are less stressful) from those carried out during classroom activities. Therefore, during remote classes, there was a lack of opportunities to acquire skills related to presentations in front of a group of people and to cope with the related stress.

Concerning possible health problems caused by prolonged use of the computer, the majority of students paid less attention to problems with deteriorating health, and more to problems with malaise, fatigue, drowsiness, some depression, overwhelming things to do at the same time, reduced motivation to learn and willingness to act. Many students reported remote learning and separation from other people had a negative effect on eating habits and physical activity. Some of them have fallen back to the bad habit of falling asleep late, going to bed and getting up at irregular times. They often felt they were not getting enough sleep. Some respondents emphasized that they make efforts to perform physical exercise (less often than before) that previously helped them. The deterioration of well-being is influenced not only by limitations in physical activity, but also by a diet that may have been under greater (personal) control. Staying at home, under parental control and adapting to their eating habits, was often perceived negatively. Some students reported slight problems with the spine and eyesight.

When asked if there were too many assignments to pass and their private life suffered, the respondents usually replied that they could manage their time well, and there were not many more assigned tasks than in the period when education was carried out in a traditional way. Relatively few students indicated difficulties in coping with a large number of tasks to be solved and the need to limit the time for rest and social life.

Most of the students stated they have more time during the distance learning period, and that remote learning allows them a flexible approach to time management. However, they highlighted the necessity to adjust for a certain period of time (usually from one to two months) to new living and learning conditions.

To the issues about the quality of interpersonal relationships and saving time for traveling in connection with remote learning, the students responded rather unani-

mously that they had good contact with their classmates (sometimes even better with some of them), and that they also used free time due to the lack of necessity. Despite noticing the advantages of the current situation, the respondents usually expressed the need to start education in a traditional form and in a social life based on personal contacts as soon as possible. Students from smaller towns emphasized the good aspects of being in a big city where a university is located.

When answering the last question on issues that had not been raised before, the students usually did not make any additional comments. Several of them reported the need to improve the method of conducting classes by lecturers in a remote mode and enriching the materials provided. In their opinion, lecturers should strive to limit excessive independent study of literature in electronic libraries by participants of remote courses.

Opinions collected in this study have made it possible to gather experiences on the use of distance learning systems by students in the difficult conditions of the pandemic and can be used in the improvement of education systems and research.

Conclusions

The purpose of the paper was achieved thanks to research on the assessment of the attitudes of Polish university students who continue their education in the conditions of the coronavirus pandemic. A series of participant observations, student interviews and comparative analysis were made. The obtained results allowed for a positive verification of the hypothesis and the statement that the elimination of traditional methods of direct education in connection with the pandemic and the introduction of only e-learning systems did not discourage the continuation of education and did not significantly reduce student satisfaction.

The students expressed their willingness to continue education in a pandemic, but pointed out that their expectations for remotely accessible teaching materials were not met. In addition, many of them believe that some lecturers are not always good at teaching with e-learning systems. They are not sufficiently accessible to students, there are difficulties with conducting real-time consultations and their involvement in work is sometimes insufficient. Some students, above all, expect an improvement in the quality of teaching materials made available online, which will free them from the need to independently search for sources of literature, which is necessary to complete subjects included in the study programs. It is not possible to agree with them in all cases, because the essence of the didactic process at universities is the implementation of independent processes of learning about reality by students, which are supported and guided by lecturers – research and teaching staff. The aim of these processes is not only the assimilation of knowledge, but above all increasing the general abilities and mental culture development of university

participants in the direction of improving the capability to carry out independent research.

The limitations of the conducted research include narrowing the scope of the selected Polish technical university to one only, a possibility of the researcher's lack of objectivity due to the use of participant observation and a relatively small research sample. These limitations open up the possibility of continuing study with the use of a wider research sample including students of various types of universities, as well as making attempts to improve the applied methods in order to increase the objectivity and credibility of the results obtained.

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