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Educat ing students during a pandemic in the light of research

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S U M M A R Y

The topic of this article is the research that was carried out at the Opole University of Management and Administration during the pandemic. The aim of the research was to answer the question whether and to what extent the COVID-19 pandemic affected the completion of studies by students of the Opole University of Management and Administration. The analysis included the assessment of students from the last semester in the academic year 2018/2019 (before the COVID-19 pandemic) and 2019/2020 (during the COVID-19 pandemic), as well as the results from the diploma examination, the coefficient of similarity of the works to others in the uniform anti-plagiarism system and the planned date of taking the final examination. The research was conducted using the data analysis method. The results showed that the students who were supposed to graduate in the time when the pandemic started, much more often than their predecessors did not take the final examination and were not able to finish writing their diploma papers. Additionally, they had lower grades in their practical subjects.

1. Introduction

The development of distance learning concepts and technologies was already known before the outbreak of the pandemic. The universities had already used distance learning and had their proven working methods. Curricula were programmed in different ways and to different degrees. It all depended on the university’s facilities and the involvement of the staff (Rafałska, 2013; Veremchuk, 2013; Turula, 2014; Grabowska, 2018). However, they were diverse and depended on local resources, the target group or the philosophy of the organisation (Sherry, 1995).

Teleconferencing technologies had already been available for many years before the emergence of COVID-19, but their use has been increasing during the pandemic. Like social networking sites before Facebook, their time was still to come.

However, new technologies cannot be a breakthrough without proper reception by people. People need time to digest, but Covid-19 seems to have forced the process on people much faster than in the past. In this context, the long-term consequences of all actions should be considered (Brailas, 2020). During the pandemic, many governments in almost all countries have, from the outset, implemented procedures to limit the build-up of large numbers of people in public places, which has also disrupted universities, and which will probably continue until a

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subject to change due to changes in the conditions in which it is carried out. The directions of these changes may be determined by accepted educational concepts or naturally result from changes in the social and technical conditions surrounding education. The latter case concerns precisely information and communication technologies, which have become ubiquitous and are forcing changes in the education process as well (Szczeńza and Gawrysiak, 2015), particularly during the COVID-19 pandemic.

2. Research methodology

The research aimed to answer the question of whether and to what extent the COVID-19 pandemic affected the completion of studies by students of the Opole University of Management and Administration.

The research was carried out by data analysis method using the PASW Statistics 18 statistical program, which used statistical methods related to testing the statistical significance of differences between the variables with the Chi-square test ($x^2$) and the Student’s $t$-test for independent samples in order to compare the means of two independent samples. For the article’s purposes the analysis of students' grades from the last semester has been done (before the pandemics of coronavirus COVID-19) and 2019/2020 (During the pandemics of coronavirus covid-19), diploma exam grades and the coefficient of works' similarity level in a uniform anti-plagiarism system (a system where all universities in Poland must verify their students works according to the anti-plagiarism procedures), as well as the planned term of taking the final exam in the academic year 2018/2019 and 2019/2020.

The study analysed the achievements of 53 first-cycle students and 119s-cycle students in the field of pedagogy, who graduated in June 2019, and their defence took place in June-September 2019, and 70 first-cycle students and 122 s-cycle students, who graduated in June 2020 during the coronavirus pandemic, and their defence was envisaged in June-September 2020. It should be noted that in Poland, since 13 March, the then Ministry of Science and Higher Education has banned full-time classes, and students completing their studies in June 2020 in the last semester had only classes on the Moodle e-learning platform and using Google Meets.

3. Results

After the analysis with the Chi-Square test of independence, it turned out that mainly students who completed their studies in June 2020 during the pandemic much more often than their predecessors did not take the final exam and were unable to write their theses on time ($x^2 = 39.006$, df $= 1$, Vc = 0.327, $p = 0.001$). (Tables 1 and 2).

51 out of 53 (96.2%) undergraduate students and 103 out of 119 (86.6%) graduate students defended their thesis in the months of June-September 2019. However, a year later 24 out of 70 (34.3%) graduate students and 93 out of 122 (76.2%) graduate students defended their thesis in the months of June-September 2020. It should be noted that in Poland, since 13 March, the then Ministry of Science and Higher Education has banned full-time classes, and students completing their studies in June 2020 in the last semester had only classes on the Moodle e-learning platform and using Google Meets.

Then, the analysis and comparison of the averages were followed by the $t$-test for independent tests, which included the results of the theoretical and methodical (practical) courses for the whole year, without division into specialisations. The group of theoretical subjects at the first level of education included Clinical Psychology and Multicultural Pedagogy. The subjects in the methodical group: Crisis intervention and seminar.

Table 2

| Form of classes     | N  | Average | Standard deviation | Standard error of the average |
|---------------------|----|---------|--------------------|------------------------------|
| Multicultural Pedagogy | 53 | 4.8302  | .29325             | .04028                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 60 | 4.7583  | .37384             | .04826                       |
| Crisis intervention - lecture | 38 | 4.6316  | .58914             | .09557                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 42 | 4.3452  | .34016             | .05249                       |
| Seminar             | 52 | 4.9808  | .09709             | .01346                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 37 | 4.9865  | .08220             | .01351                       |
| clinical psychology | 50 | 4.6887  | .48265             | .06630                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 63 | 4.6984  | .56468             | .07114                       |
| Andragogy II degree | 119| 4.0420  | .69068             | .06331                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 109| 4.4954  | .50688             | .04855                       |
| Health education II degree | 119| 4.2429  | .76796             | .07040                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 122| 3.9385  | .77826             | .07046                       |
| Educational counselling II degree | 119| 4.6261  | .64840             | .05944                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 122| 3.7090  | .88102             | .07976                       |
| Seminar II degree   | 119| 4.7521  | .41104             | .03768                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 86 | 4.7791  | .30297             | .03267                       |
| Dysfunction prevention II degree | 119| 4.3361  | .47438             | .04349                       |
| before the pandemic  |    |         |                    |                              |
| during the pandemic  | 120| 4.9833  | .18257             | .01667                       |

Table 1

| Graduation | N  | Mean     | Standard Deviation | Standard error of the mean |
|------------|----|----------|--------------------|----------------------------|
| June 2019  | 172| 1.1047   | .30790             | .02341                     |
| June 2020  | 192| 1.3906   | .48917             | .03530                     |

Number of all the undergraduate and graduate students in a given academic year.

As far as the practical subjects are concerned, the analysis of data gave completely different results. It turned out that at the first level of evaluation from the subject, the crisis intervention was better at the time when the classes were held on-site. The difference in averages was 0.2864 ($t = 57.930 = 2.626, p = 0.001$). On the second degree, a statistically significant difference was noted between the marks from the subjects of health education and educational counselling. As far as health education is concerned, the
difference between the average results from the grades was 0.3044 (t (238.967) = 3.055, p = 0.003), and in the case of educational counselling 0.9171 (t (222.378) = 9.219, p = 0.001).

In addition, it was analysed whether there were any statistically significant differences between the term of defence during the pandemic between students from the teaching specialisation and the rest of the students. Such an analysis was made because, during the pandemic, students of the teaching specialisation could complete their internship much easier than students who finished other specialisations. This was due to the fact that the Ministry of Science and Higher Education of that time gave students in teacher training courses the opportunity to complete their internships remotely. At that time it should be mentioned that schools also provided remote teaching. In a worse situation were those students who had to complete their practices in prisons, orphanages or youth care centers. Access to these facilities is limited due to the specific type of functioning and the students had no possibility of completing their practices remotely.

After the analysis, however, it turned out that this variable did not affect the defence of the work on time (x^2 = 2.576, df=1, Vc=0.116, p = 0.108).

4. Discussion

The year 2020 has brought unprecedented challenges for the international community, which will have serious consequences in all sectors of society for future generations. The direct impact of Covid-19 has hindered the development of education at all levels and around the world and has generated new problems to be solved (Crosley et al., 2020), and yet before the pandemic, the World Bank announced a "learning crisis" on the basis of data showing how many young people do not achieve minimum learning standards (Lewin, 2020).

Considering the analyses of teaching level at the university during the coronavirus pandemics it should be taken into account that this phenomenon could contribute to lowering the academic performance of students. Classical, face-to-face education is still the dominant form of student education in Poland. As a result of an unexpected and sudden pandemic, unfortunately, science has taken on a completely different dimension and has forced everyone to adapt to changes. However, it can be seen from the above data that both academic teachers and students still need to strengthen their skills in remote teaching and learning.

That is why academic teachers should not only teach but also educate themselves on how to conduct classes in the new reality. Their education should be based on a critical analysis of complex topics of reality, and the ongoing problems of the modern world (Suoranta, 2020).

We should also take into account the fact that the pandemic has caused different feelings among students. As the research indicates, these feelings are related to dissatisfaction with interrupted classes (70.7%), anxiety about lost classes (70.7%), fear of continuing education (50.7%), or regret about interrupted classes face to face (Kedraka and Kaltsidis, 2020).

In addition, although ICT is developing at a dizzying pace, it can be concluded that this is not compatible with the increase in the ability to use it in teaching.

It is therefore becoming a priority challenge in student education.

As many researchers have argued, educators need open teaching and learning materials (books, online materials, courses, discussion forums) and a renewed, not fragmented paradigm of teaching and learning in post-pandemic times.

It is also urgent, among other things, that the advantages and disadvantages of online learning under different circumstances should be continuously examined (Suoranta, 2020). It should be remembered that the quality of online learning requires further research. At present, there was no time to discuss in detail the issue of quality assurance of the online learning method, as the main objective was to save the education process and continue it in any possible format (Basilia and Kvavadze, 2020).

Besides, it may also be a problem that, in addition to teaching, work has also moved home and the demand for computer equipment has increased for practically every family member. Studies show that not everyone has the right equipment, and if they do, not all classes can be done online (Abramjan and Katasonova, 2020).

However, it should be taken into account that until now, mobile devices have become increasingly cheaper and access to them is becoming more common (Piper et al., 2016).

That is why a number of questions arise, including what about those students who do not have access to laptops and the Internet at home. Is it possible to conduct practical and laboratory classes, music and art courses online? What will happen to those students whose courses cannot be conducted online? Therefore, the quality of teaching requires an appropriate organization of the educational process (Salu, 2020).

It is still necessary to prepare for this form of education for some time to come, and the best tools need to be developed so that learning can get back on track. For this, we undoubtedly need a thorough diagnosis of the measures taken in the field of remote learning, and, above all, the opinion of students related to these measures.

However, despite the ability to cope with modern technology, it is important to remember that for the first time in a long time, the centre of gravity of control over life has reversed, and this may push everyone to think critically about, among other things, what will happen after the pandemic (Tranier et al., 2020).

Students’ feelings were certainly influenced by the fact that, despite the covid-19 pandemic, learning continued to take place remotely. However, fear could remain, due to students’ ICT skills.

Although the availability of computer equipment may be quite common, it may be difficult to operate efficiently.

5. Conclusion

As a result of data analysis, it was found that students who had their final exam planned in June 2020 were much more likely than their predecessors not to take this exam and were unable to write their theses on time (x^2 = 39.006, df=1, Vc=0.327, p = 0.001). It could have been directly or indirectly influenced by the situation that surprised both students and academic teachers. A transition from stationary to remote learning could have caused a lot of chaos, especially in maintaining contact with the academic teachers, including in particular with thesis supervisors. A direct form of work with students has, so far, been the most dominating and functioning form. As it can be observed in the above-presented data, not everyone was able to adjust to the prevailing requirements and complete the studies on time. What influenced the whole process additionally, was the fact that for some period of time there was a full “lock down” which could make the access to bibliographies and above all, the possibility to conduct research in various types of institutions, very challenging.

The coronavirus pandemics could also indirectly be one of the causes of not completing studies due to the reasons not connected with studying itself, for example, economic, i.e. job loss, job loss by a family member or the need to change industries.

The fear of the disease, which has so far remained in the sphere of research, the closure of many workplaces and care facilities, and the tightening of rehabilitation and therapeutic facilities may have had an impact on the fact that students could not complete their theses. The fear of transmission of infections caused isolation. On the one hand, it could be that the students themselves, fearing for their lives, did not want to undertake research activities, and on the other hand, as already mentioned, the facilities were closed or operated but closed before the entrance of people from outside.

Research indicates that a pandemic undoubtedly has an impact on this and can cause low to medium levels of anxiety among students, as well as feelings such as anxiety, uncertainty or concern for the future of their studies (Akat and Karataş, 2020; Kedraka and Kaltsidis, 2020; Karalis and Raikou, 2020).
Besides, some students may also have had feelings such as sadness mainly because this is the last semester that they would go to college, curiosity about what the study will look like, or the joy of not having classes and responsibilities (Karalis and Raikou, 2020). It seems reasonable, therefore, that remote teaching in emergencies or redesigned distance learning should cooperate with various specialists (e.g. psychologists, sociologists, therapists, etc.). Creating solutions on a wider scale is crucial, because in times of crisis, providing content is not the only issue of concern, and it is also important to care for and support learners in such moments.

In reality, what we teach at these times can be of secondary importance. It is important to remember that pupils, students will not remember the educational content provided, but how they felt in these difficult times (Bozkurt and Sharma, 2020).

Research results show that changing the mode of teaching-learning requires strong motivation, self-discipline, time management skills, and a comfortable learning environment, including constant communication with the Internet (Kwiatkowska, 2012). The motivational function in the course of distance learning seems to be particularly important, as it is an extremely important activity, and at the same time, the degree of its difficulty increases many times in comparison with the educational process taking place in “traditional” conditions. Therefore, attention should be paid to the education of this competence instrumentation in future and current teachers conducting online courses (Kuzminc, 2012).

It was also noted that students achieved worse results in practical subjects, compared to theoretical ones. It can be seen that, as far as strictly theoretical subjects are concerned, even in pandemic times, students were able to achieve higher scores than in on-site education. This may be due to the availability of downloadable materials in university repositories, as well as the placement of additional materials on e-learning platforms. Extensive e-learning platforms can undoubtedly provide a very good basis for working with students. Depending on how they are used, they can support the education process at the university level. The openness of science promotes self-education of both students and researchers. However, universities should nowadays implement modules to enable students to acquire knowledge and skills for distance learning and self-education. This will improve students’ ability in this area.

As many researchers have called for, empirical research should be conducted, focusing on the educational value of remote laboratories. This does not only apply to the research project (i.e. remote laboratory and practical laboratory, measurements before and after the course) but also to the instruments used (standardised, validated) and methods of data analysis (Post et al., 2019).

The opinions of the students themselves about to distance learning should be taken into account (Myers, 2020). For this purpose, an in-depth diagnosis will be necessary, prepared and carried out, related primarily to students’ ability to cope with modern information and communication technologies.

The situation was completely different with methodological (practical) subjects. The data show that students achieved lower scores, compared with the students who had completed their studies stationary. One may wonder where the problem lies. For example, can we blame it on the fact that the employees were not yet properly prepared to be able to competently teach typically practical subjects remotely? In this case, the academic staff would have to develop such teaching tools so that students could also freely raise their competences in this field. Additionally, it should be noted that some practical classes, such as those in specialized laboratories, cannot be transferred to the virtual space. In this case, the problem may be insoluble.

Perhaps it is also the case that classes of this type conducted in a stationary mode have a greater impact on the students’ perception and make it easier for them to master the material more efficiently.

However, it must be taken into account that in the years to come, education will be completely transformed in a different way that cannot be imagined but dreamed of. In today’s situation, the critical guiding question is, what world to deliver to our children’s children? What kind of technical-social territory to live in (Braillas, 2020)?

Studies also show that in this situation, during the transition from traditional to distance learning, however, the majority of students are satisfied (Karalis and Raikou, 2020). This may be because, thanks to distance learning, students also see the advantages of this form of learning in terms of saving time and money.

The expansion of online learning in higher education will continue to accelerate, and schools will organise themselves more systematically to deal with aspects of technology-based learning that have proved most useful. All institutions will benefit from the mechanisms introduced to continue their education and training missions during the crisis (Daniel, 2020). The Internet can foster communication between students and universities. Academic teachers can keep in touch with students using e-mails, instant messaging or websites, but they need to remember to build an academic community that feels like a community (Brown, 2001).

For this to happen, however, higher education institutions must have a properly developed ICT infrastructure, appropriate ICT tools, access to applications and platforms, as well as adequate skills to conduct classes in this mode. This pedagogical transformation requires rapid mobilisation among university staff and modernisation of university resources (Ali, 2020).

The process of globalisation and its impact on education should also be taken into account. Universities have begun to work together to equip graduates with international competences, transferable skills and foreign language skills.

By competing to recruit international students and professors, education levels are also increasing (Hsieh, 2020). Therefore, in addition, COVID-19 pandemic may influence further globalisation processes in education. The internationalisation of learning may become even more widespread, thanks to remote learning.

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